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GUIDELINES FOR REVIEW OF EA/EIS DOCUMENTS.(U)
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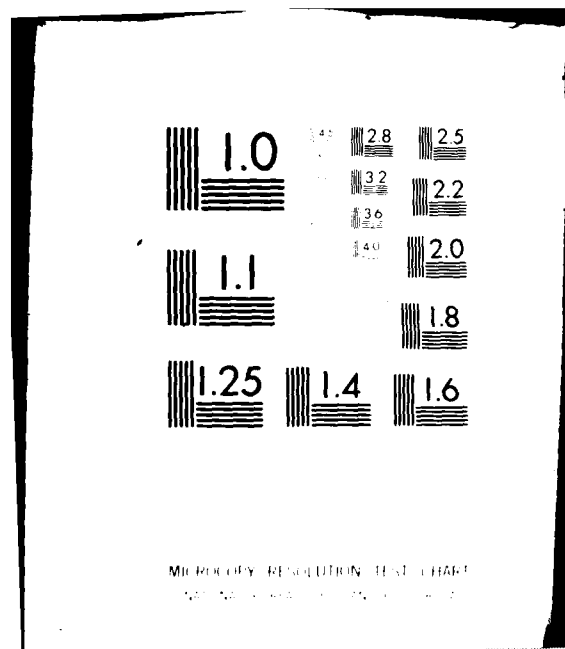
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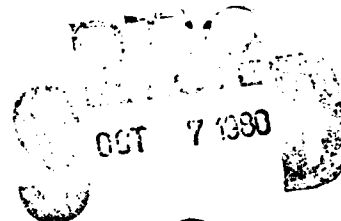
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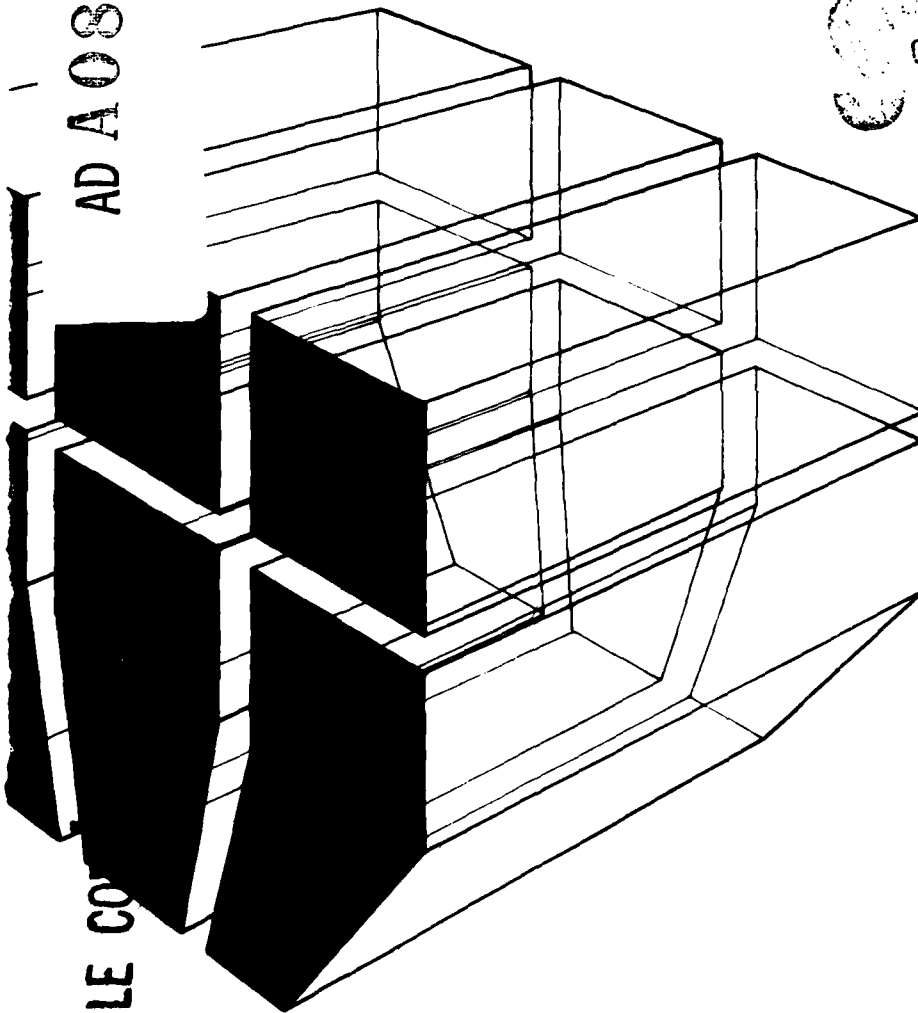
GUIDELINES FOR REVIEW
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by
John J. Fittipaldi
Edward W. Novak



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cont - reviewed more closely than before; therefore, an efficient procedure is needed for comprehensive, uniform evaluation.

To meet these new requirements, this report sets forth systematic procedures for a review and evaluation of EA/EIS documents for Administrative Compliance, General Document, and Technical Review; and outlines a procedure to prepare a review summary of EA/EISs, which will lead to an ultimate recommendation on the technical adequacy and completeness of those documents. It is recommended that this report be used in conjunction with revised DA Pamphlet 200-1, *Handbook for Environmental Impact Analysis*, AR 200-1, *Environmental Protection and Enhancement*, and AR 200-2 until this information is incorporated into revisions of these documents.

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FOREWORD

This report was prepared for the Directorate of Military Programs, Office of the Chief of Engineers (OCE), under Project 4A1621A896, "Environmental Quality for Construction and Operation of Military Facilities"; Task 01, "Environmental Quality Management for Military Facilities"; Work Unit 001, "Procedures for Evaluating Environmental Impacts of All Army Military Programs." The OCE Technical Monitor was Mr. V. J. Gottschalk.

The work which led to the development of this manual was the result of interdisciplinary cooperation between personnel of the U.S. Army Construction Engineering Research Laboratory, Environmental Division (CERL-EN), and a team of engineers and scientists: Dr. L. V. Urban, Dr. R. H. Ramsey, and Mr. M. C. O'Neil from Texas Tech University. CERL researchers who provided valuable comments on the manuscript include Dr. H. Balbach, Ms. S. Thomas, Mr. R. Baran, Ms. L. Engelman, Ms. R. Graff, Mr. D. Hunt, and Mr. J. Westervelt.

Dr. E. W. Novak is Chief of EN. COL L. J. Circeo is Commander and Director of CERL, and Dr. L. R. Shaffer is Technical Director.

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GUIDELINES FOR REVIEW OF EA/EIS DOCUMENTS

1 INTRODUCTION

Background

As a result of the National Environmental Policy Act (NEPA) (42 USC 4321), Executive Orders, and Council on Environmental Quality (CEQ) regulations, the Department of the Army (DA) has developed specific procedures for responding to NEPA and subsequent requirements. This guidance is included in DOD Directive 6050.1, *Environmental Considerations in DOD Actions* (30 July 1979); *Handbook for Environmental Impact Analysis*, DA Pamphlet 200-1 (April 1975); *Environmental Protection and Enhancement*, Army Regulation (AR) 200-1 (20 January 1978); and proposed AR 200-2, *Environmental Considerations in the Department of the Army*.

AR 200-2 has imposed stringent new requirements for NEPA compliance. This means that hundreds of environmental assessments (EAs) and environmental impact statements (EISs) must be reviewed more closely than before. An efficient procedure is therefore needed for comprehensive, uniform evaluation of these documents.

Purpose

The objective of this study was to develop guidelines and procedures for Army personnel in fulfilling their obligation to review EA/EIS documents written as a result of AR 200-2.

Approach

For information about techniques now used to review EA/EIS documents, CERL sent a questionnaire to DA headquarters staff and to environmental staff at the major commands and selected installations. In addition, CERL performed a literature search to study the state of the art for EA/EIS review. Finally, a team of technical specialists -- using the results of the questionnaire, literature search, and DA experience -- developed the unique review procedure described in this report.

Chapter 1 discusses the regulatory requirements behind the environmental assessment process. Chapter 2, "Administrative Compliance Review," presents a procedure for reviewing and evaluating EA/EIS documents for compliance with Army requirements, thus ensuring simultaneous compliance with NEPA and CEQ regulations. A checklist format is used; the reviewer responds to a series of specific questions and summarizes the responses on a scoresheet at the end of the chapter.

Chapter 3, "General Document Review," provides a series of questions for reviewing and evaluating all or parts of EA/EIS documents for readability, writing style, and structure. Checklists accompanied by descriptive comments are presented to determine clearness, completeness, and correctness. A review summary is provided at the end of the chapter.

Chapter 4, "Technical Review," presents information allowing reviewers in various Army offices and at various levels of technical expertise to evaluate EA/EIS documents for technical content. The procedure requires responses to a series of questions and follow-up questions, statements, and instructions designed to lead the reviewer through mutually exclusive subject areas and to determine the technical adequacy of the EA/EIS in each particular category. The areas covered in the technical review are the same as the 13 environmental categories (technical specialties) of the existing Environmental Impact Computer System (EICS).¹ Reviewers familiar with EICS may find it convenient to integrate that system and the technical review section of this report.

¹ R. S. Baran and R. D. Webster, *Interactive Environmental Impact Computer System User Manual*, TR N-80/ADA074890 (U.S. Army Construction Engineering Research Laboratory, 1979).

Finally, Chapter 5 outlines a procedure for preparing a summary review of the entire EA/EIS document. Incorporating information in the summaries from Chapters 2 through 4 can produce an ultimate recommendation on the adequacy and completeness of the document.

Use of the Guidelines

The office or individual responsible for the overall review of the EA/EIS document may use the Review Checklist (Figure 1) as an aid in coordinating the individual component reviews. It should be emphasized that it is not necessary for each component reviewer to be an expert in all areas covered by these guidelines. Nor is it important that a reviewer read this report thoroughly upon every use; as one's familiarity with the contents increases, the actual reading requirement decreases. It is only necessary that each reviewer examine and evaluate the EA/EIS document to the extent of his/her capability, and note those sections where additional expertise may be necessary.

Project Title: _____

EA _____

EIS _____

Draft _____

Final _____

Review Coordinator: _____

<u>Review Component</u>	<u>Office/Individual</u>	<u>Sent</u>	<u>Returned</u>	<u>Remarks</u>
Administrative Compliance Review	_____	_____	_____	_____
General Document Review	_____	_____	_____	_____
Technical Review				
Ecology	_____	_____	_____	_____
Health and Safety	_____	_____	_____	_____
Air Quality	_____	_____	_____	_____
Surface Water	_____	_____	_____	_____
Groundwater	_____	_____	_____	_____
Sociology	_____	_____	_____	_____
Economics	_____	_____	_____	_____
Earth Science	_____	_____	_____	_____
Land Use	_____	_____	_____	_____
Noise	_____	_____	_____	_____
Transportation	_____	_____	_____	_____
Aesthetics	_____	_____	_____	_____
Energy and Resources	_____	_____	_____	_____

Figure 1. Review checklist.

In general, it is suggested that the reviewer follow this procedure:

1. *Become familiar* with the review guidelines, Chapters 2 through 5. Become accustomed to the content and types of questions asked in each section, and to the summary forms used in each chapter.
2. *Read* the EA/EIS document to be reviewed. Understand the details of the proposed action -- its scope, purpose, description, and impact on the environment.
3. *Consult* with others who have knowledge in unfamiliar areas; this will be necessary especially in the technical review sections (Chapter 4).
4. *Answer*, to the extent possible, the questions provided in Chapters 2 through 4. Refer to the original document where uncertainties exist. Answer the questions with respect to the preferred course of action stated in the document. If two or more alternatives are being considered, the technical review (Chapter 4) should be repeated for each.
5. *Consolidate* the responses from individual reviewers.
6. *Summarize* the answers to specific questions and provide additional commentary by filling out the summary forms at the ends of the chapters.
7. *Evaluate* the EA/EIS document on the basis of the consolidated summaries.
8. *Report* the results of the review to the responsible project officer by using the procedure outlined in Chapter 5.

Detailed instructions are given at the beginning of each chapter.

Mode of Technology Transfer

Information from this document will be included in the revision of DA Pamphlet 200-1, *Handbook for Environmental Impact Analysis*, which provides procedures for preparing EA/EISs.

2 ADMINISTRATIVE COMPLIANCE REVIEW

The administrative compliance review process is designed to help the reviewer decide if the EA/EIS complies with NEPA, CEQ regulations, and Army agency requirements. This chapter is divided into three sections. The first section tells the reviewer how to use the review tests. Since compliance with NEPA and CEQ provisions is achieved upon compliance with AR 200-2, the second section provides a mechanism for evaluating EA/EIS documents for compliance with the regulation. The final section is an administrative compliance review summary to be developed as an aid to decision-making.

Reviewer Instructions

The reviewer of Army EA/EIS documents should complete the following sections by answering the questions sequentially unless instructed to do otherwise. The test questions are structured to focus on such specific requirements as preparation, format, page limit, general content, and processing.

Answers to the specific questions from each subject area are summarized by using the form in Figure 2. Overall administrative compliance is summarized by following the procedure presented in **Administrative Compliance Review Summary** (p 13). The adequacy of the EA/EIS is to be evaluated according to the following categories:

In Compliance: the EA/EIS contains all necessary and sufficient information, and in the specified format.

Not In Compliance: the EA/EIS does not contain necessary and sufficient information, and/or is not in the specified format.

Review Questions: NEPA/CEQ Regulations/AR 200-2 Compliance

1. **Interdisciplinary Preparation:** Has the EA/EIS been prepared using a systematic interdisciplinary approach?

All documents are to be prepared using a systematic interdisciplinary approach. The disciplines of the preparers should be compatible with the scope and issues identified in the scoping process. The approach must ensure the integrated use of the natural and social sciences. An EIS must contain a list of the preparers and their qualifications (expertise, experience, and professional disciplines). An examination of this list will indicate whether the document has been prepared with interdisciplinary approach.

No: Note deficiencies and continue to 2.

Yes: Continue to 2.

2. **Format, Page Limit, and General Content**

a. Is the environmental document identified as an EA?

No: Go to 3.

Yes: Continue with 2a(1) through 2a(3).

(1) **Format:** CEQ regulations do not specify a format for EAs. Refer to AR 200-2 for Army requirements on EA format.

(2) **Page Limit:** CEQ regulations do not specify a minimum or a maximum page limit for EAs, but suggest that most EAs not be longer than several pages.

(3) **General Content:** The assessment should include the following:

- Brief discussion of the need for the proposal or action;
- Alternatives to the proposed action;
- Environmental impacts of the proposed action and alternatives;
- Listing of agencies and persons consulted.

Go to **Administrative Compliance Review Summary**, p 13.

3. Is the environmental document identified as an Environmental Impact Statement (EIS)?

No: The document should be identified as either an EA or an EIS. If it is an EIS, it must follow a prescribed format and be identified as either a draft or final EIS. If the document is not properly identified, assume it is an EA and return to 2a(1).

Yes: Continue to 3a.

a. Does the EIS follow the required format?

All agencies are to use a format for EISs which encourages good analysis and clear presentation of alternatives. The following standard format is recommended for EISs and should be followed unless there is a compelling reason not to:

- (1) Cover Sheet
- (2) Summary
- (3) Table of Contents
- (4) Purpose and Need for Action
- (5) Courses of Action Considered
- (6) Comparison of Effects
- (7) Environmental Setting
- (8) Environmental Consequences
- (9) List of Preparers
- (10) Distribution List
- (11) Index
- (12) Appendices (if any).

If a different format is used, it still must include items (1) through (3) and (9) through (11), and the basic information in items (4) through (7) and (12).

No: Note deficiencies and continue to 3b.

Yes: Continue to 3b.

b. Is the text of the EIS less than 150 pages?

The text of final EIS normally is to be less than 150 pages -- except for proposals of unusual scope or complexity, which normally are not to be longer than 300 pages.

No: If the project is of unusual scope or complexity, a longer statement may be warranted. Otherwise, note excessive length and continue to 3c.

Yes: Continue to 3c.

c. General Content: Complete sections 3c(1) through (11).

(1) Does the cover sheet include all necessary information?

The cover sheet is not to exceed one page and must include the name of the responsible agencies, including the lead agency and any cooperating agencies. It must also include the name of the proposed action, and the state and location where the action is proposed. Also, the name, address, and telephone number of a person within the agency who can supply further information must be given. A designation of the statement as a draft, final, or draft or final supplement must be provided, as well as a one-paragraph abstract of the EIS. The cover sheet must also include the date by which comments must be received.

No: Note deficiencies and continue to 3c(2).

Yes: Continue to 3c(2).

(2) Does the EIS contain an adequate summary?

Each EIS must contain an adequate and accurate summary, including the agency's major conclusions, areas of controversy, and issues to be resolved. The summary will normally not exceed 10 pages. If the above criteria are not met, the summary may be deemed inadequate.

No: Note deficiencies and continue to 3c(3).

Yes: Continue to 3c(3).

(3) Does the document contain a complete Table of Contents?

The Table of Contents should outline the major sections of the document and indicate the correct pages for these sections.

No: Note deficiencies and continue to 3c(4).

Yes: Continue to 3c(4).

(4) Does the document clearly state the purpose and need for the action?

Each EIS must briefly (usually not to exceed one page) specify the underlying purpose of the proposed agency action. The reason for the proposed action and the alternatives must be readily understandable to a reader who is not familiar with the project or action.

No: Note deficiencies and continue to 3c(5).

Yes: Continue to 3c(5).

(5) Does the document adequately discuss the courses of action considered?

CEQ considers this section the heart of the EIS. The environmental impacts of the proposal and the alternatives should be compared to provide a clear basis for choice. The following must be included:

- All reasonable alternatives must be rigorously explored and objectively evaluated. Reasons for eliminating any alternatives from detailed study should be discussed briefly.
- Substantial treatment for alternatives considered in detail is to be given so that reviewers may evaluate their comparative merits.
- Any reasonable alternatives not within the jurisdiction of the lead agency must be included.
- The "no action" alternative must be included.
- The agency's preferred alternative or alternatives must be identified (unless prohibited by another law).
- Appropriate mitigation measures not previously discussed must be included.

No: Note deficiencies and continue to 3c(6).

Yes: Continue to 3c(6).

(6) Are all aspects of the environment potentially affected by the proposed action adequately described?

The EA/EIS must succinctly describe the environmental setting of the impacted areas. The data and analysis presented must be commensurate with the importance of the impact. Useless bulk is to be avoided. Excessively wordy descriptions of the affected environment should not be taken as a measure of the adequacy of the EIS.

No: Note deficiencies and continue to 3c(7).

Yes: Continue to 3c(7).

(7) Does the document adequately discuss a comparison of environmental consequences of the project and alternatives?

This section presents the scientific and analytic bases for weighing the alternatives. It must include the environmental impacts of the proposed action and alternatives as well as the unavoidable, adverse environmental effects. It must also include the analyses of short and long-term impacts and any irreversible commitments of resources. The agency should avoid duplication between this section and the alternatives section. Specifically, the discussion must include:

- Both the direct and indirect effects of the proposed activities. Indirect effects include growth-inducing effects (impacts leading to local or regional population shifts) or other ecological ramifications.
- Possible conflicts between the proposed action and state, local, Federal, or Indian land use plans or objectives.
- Environmental effects of all the proposed alternatives. The comparison of alternatives made earlier is based on this discussion.
- Energy requirements and conservation potential of alternatives.
- Urban quality, historic and cultural resources, and design of roads, buildings, and other structures. The discussion should include associated reuse and conservation potential of alternatives and mitigations.
- Means to mitigate adverse environmental impacts if not covered in the earlier section on alternatives. If the above criteria are not met, the discussion of environmental consequences may be deemed inadequate.

No: Note deficiencies and continue to 3c(8).

Yes: Continue to 3c(8).

(8) Does the EIS list those individuals responsible for preparing the document?

The EA/EIS must list the names, professional descriptions and contributions of those primarily responsible for preparing the EIS. Normally the list will not exceed two pages.

No: Note deficiencies and continue to 3c(9).

Yes: Continue to 3c(9).

(9) Does the EA/EIS list the agencies, organizations, and persons to whom copies of the statement are sent?

No: Continue to 3c(10) after noting deficiency.

Yes: Continue to 3c(10).

(10) Does the document contain an index?

No: CEQ regulations do not elaborate but indicate that an index may be included.

Yes: Continue to 3c(11).

(11) Does the statement contain an appendix?

No: The EIS need not contain an appendix, but if it does, the appendix must contain material in connection with the EIS.

Yes: The material in the appendix should normally be analytic and substantiate the analysis in the EIS. It must either be circulated with the EIS or be readily available on request.

Continue to **Administrative Compliance Review Summary**.

Administrative Compliance Review Summary

The form in Figure 3 should be completed and signed by the reviewer after analysis of the EA/EIS document. The form then should be presented to the responsible official for signature and notation for concurrence or nonconcurrence of the review summary.

	Reference Section	In Compliance	Not In Compliance	Remarks
1. Interdisciplinary Preparation	1			
2. Environmental Assessment				
Format	2a(1)			
Page Limit	2a(2)			
General Content	2a(3)			
3. Environmental Impact Statement				
Format	3a			
Page Limit	3b			
General Content	3c			
Cover Sheet	3c(1)			
Summary	3c(2)			
Table of Contents	3c(3)			
Purpose/Need	3c(4)			
Alternatives	3c(5)			
Affected Environment	3c(6)			
Environmental Consequences	3c(7)			
List of Preparers	3c(8)			
List of Agencies, etc.	3c(9)			
Index	3c(10)			
Appendices	3c(11)			

Figure 2. Administrative compliance review.

	Reference Section	In Compliance	Not In Compliance	Remarks
1. Interdisciplinary Preparation	1			
2. <u>EA</u>				
Format	(2a(1))			
Page Limit	2a(2)			
General Content	2a(3)			
3. <u>EIS</u>				
Format	3a			
Page Limit	3b			
General Content	3c			
Cover Sheet	3c(1)			
Summary	3c(2)			
Table of Contents	3c(3)			
Purpose/Need	3c(4)			
Alternatives	3c(5)			
Affected Environment	3c(6)			
Environmental Consequences	3c(7)			
List of Preparers	3c(8)			
List of Agencies, etc.	3c(9)			
Index	3c(10)			
Appendices	3c(11)			
Recommendations				

Signature: _____ Date: _____
(Reviewer)

Title: _____

Figure 3. Administrative compliance review summary.

3 GENERAL DOCUMENT REVIEW

This chapter is divided into three sections: the first presents instructions for the reviewer to use in conducting the review tasks; the second contains questions for evaluating the style and readability of the EA/EIS document; and the summary form in the last section is to be completed as an aid in decision-making.

Reviewer Instructions

The reviewer of a document being prepared for publication often functions as an editor during document examination. The editing process occurs when recommendations are made to improve content, organization, language, style, and mechanical details of the document contents. When examining the document, the reviewer can aid the writer by evaluating the style and content of the EA/EIS. Expertise in the topic area, a knowledge of the public who will use the document, or familiarity with communication techniques enable the reviewer to help the writers prepare a clear, concise document. The questions for general document review are grouped under categories for clarity, completeness, and correctness. The reviewer is to answer test questions in succession unless instructed to omit those not applicable to the document. Figure 4 is the answer sheet for the test questions; this form, with appropriate signature blocks, is also the summary (Figure 5) for this portion of the review process and is to be completed as an aid to decision-making.

General Document Review Questions

1. Clarity: Examination of the study document for language and organization, including arrangement and presentation of the material, use of headings, and consistency in physical layout.

- a. Are there too many catchwords, colloquialisms, cliches, or abbreviations in the report?

These may be clear to the writers or Army personnel but not to the public. Acronyms used in Army activities fall in this category.

No: Continue to 1b.

Yes: Note problem area(s) and continue to 1b.

- b. Were short, simple thought units (on the average) used throughout the document?

Easy reading is characterized by short words and sentences. Reading ease can be achieved even when long words and sentences are required if short sentences and short words are used as a balance. The average sentence length in the document should be short.

No: Note problem area(s) and continue to 1c.

Yes: Continue to 1c.

- c. Does the organization of information in each section follow a logical sequence?

The document should exhibit continuity within each section as well as between sections. Poor organization can create problems during the review phase even if the content is satisfactory.

No: Note problem area(s) and continue to 1d.

Yes: Continue to 1d.

- d. Were different thought units effectively broken up by good paragraph construction and correct use of headings and titles?

Unusually short or long paragraphs should be a warning sign. As a rule, any paragraph either greatly under or greatly over 100 words should be critically examined. A paragraph format suitable for reports consists of a summarizing topic sentence followed by a series of sentences relating details, examples, or evidence which illustrate or amplify the main thought.

Titles and headings should accurately reflect the text they introduce. They should be informative but short, and should guide the reader. A person who wishes to review the document should find key ideas and a basic outline of a chapter or unit indicated by the headings.

No: Note deficiencies and continue to 1e.

Yes: Continue to 1e.

e. Are there enough illustrations in the document?

Illustrations are useful in describing concrete subject matter. They can give information more impact or clarify details difficult to explain in the text -- for example, time and space relationships, organization, and relationships between variables.

No: Note deficiencies and continue to 1f.

Yes: Continue to 1f.

f. Are the illustrations (figures, drawings, graphs, photographs, or maps) in the document pertinent to the text and free of irrelevant details?

The writer should use illustrations for definite purposes: either to clarify -- or serve as the primary means of conveying -- an idea presented in the document. The text and the illustrations should complement each other. The illustrations should not introduce material that is not discussed in the text.

No: Note problem area(s) and continue to 1g.

Yes: Continue to 1g.

g. Is the format (page layout, typing, heading, and numbering systems) consistent throughout the document?

Format affects the success of written communications through its influence on the reader. A consistent format gives the reader confidence in the document content and ensures earlier comprehension.

No: Note inconsistencies and continue to 2.

Yes: Continue to 2.

2. Completeness: Treatment of the study problem should provide a comprehensive view of the benefits and costs associated with the implementation of the activity.

a. Have the contents of the document been effectively limited to needed information only?

For example, unless alligators are native to the site in question, there is no need to include a statement that the proposed activity will not affect the alligator population in the United States.

No: Note problem area(s) and continue to 2a(1)-(3).

Yes: Continue to 2b.

(1) Does the document provide information that can and should be provided elsewhere?

A documentation and referencing system can reduce the amount of information needed in a document. For example, consider an activity planned at the Harmony Church area of Fort Benning, GA. For many of the area's environmental characteristics, the EA could reference the base study made at Fort Benning. This would eliminate the repetition of information readily available in the EIS made for the installation.

No: Continue to 2a(2).

Yes: Note problem area(s) and continue to 2a(2).

(2) Has unnecessary duplication of information in the document been eliminated?

A well-organized document introduces information in a logical sequence so that unnecessary duplication or explanation of information is eliminated. Use of appendices and an appropriate cross referencing system can guide the reader to information which complements the text.

No: Note duplication(s) and continue to 2a(3).

Yes: Continue to 2a(3).

(3) Does the document supply all the information to fulfill its intended purpose?

A document should be as complete as the available time and money allow. In addition, the document should reflect the true environmental importance of the impacts from the activity -- considering scale, location, time, and other conditions. For example, if a new post exchange (PX) facility with an

area of 18,000 sq ft (1700 m²) is to be built in an existing cantonment area, then a detailed analysis of the impact on the area's ecology probably is not needed in the EA/EIS document.

No: Note deficiencies and continue to 2b.

Yes: Potential impacts have been identified for all feasible alternatives even though not analyzed in the same detail. Continue to 2b.

b. Did the writers make maximum use of the information sources available to them?

The sources of data noted by the writer may not have been fully exploited. The expertise of the reviewer can be used to identify both the information gaps within the document and the means to eliminate those gaps. If additional data, correlation techniques, or data interpretations are included in the document and are based on the reviewer's experience and knowledge of the topic area, the report will be more detailed and thorough.

No: Note deficiencies and continue to 3.

Yes: Continue to 3.

3. Correctness: The reviewer assesses the validity of the document's contents.

a. Does the content of the document reflect current knowledge of the topics being discussed?

Current knowledge, data analysis procedures, scientific opinion, or regulatory constraints should be used in the analysis of the study problem.

No: Note deficiencies and continue to 3b.

Yes: Continue to 3b.

b. Are the remarks made in the text adequately referenced?

Proper scientific referencing increases the believability of the document.

No: Note deficiencies and continue to 3c.

Yes: Continue to 3c.

c. Are the remarks made in the document factually correct?

If facts, units of measurement, or conversion factors are incorrect, this reduces the confidence of the reader in the truthfulness of the document as a whole.

No: Note deficiencies and continue to 3d.

Yes: Continue to 3d.

d. Are the remarks in the document presented without bias?

The wording of the text should be limited to the use of the impersonal objective pronouns. All the pros and cons of the various alternatives should be presented.

No: Note problem area(s) and continue to 3e.

Yes: Continue to 3e.

e. Have all environmental implications from the data been identified?

Consider, for example, a document stating that wastes from an activity will be deposited in the post landfill, but commenting no further about the effects of the waste after deposition or about whether the existing landfill is suitable for handling the waste. Answering these questions before the document is submitted to the public can reduce the time for the EIS review.

No: Note deficiencies and continue to **General Document Review Summary**.

Yes: Continue to **General Document Review Summary**.

General Document Review Summary

The form in Figure 5 should be completed and signed by the reviewer after analysis of the document. The form then should be presented to the responsible official for signature and notation for concurrence or nonconcurrence of the review summary. Chapter 5 should be consulted for details.

Reference	Section	Acceptable	Unacceptable	Remarks
1.	<u>Clarity</u>			
	Catchwords, colloquialisms	1a		
	Short thought units	1b		
	Logical sequence	1c		
	Paragraph construction/ headings	1d		
	Number of illustrations	1e		
	Correct illustrations	1f		
	Mechanical format	1g		
2.	<u>Completeness</u>			
	Contents limited to needed information	2a		
	Excessive information	2a(1)		
	Unnecessary duplication	2a(2)		
	Sufficient information	2a(3)		
	Utilization of existing information	2b		
3.	<u>Correctness</u>			
	Current Knowledge Reflected	3a		
	Remarks Adequately Referenced	3b		
	Remarks Factually Correct	3c		
	Lack of Bias	3d		
	Environmental Implications Identified	3e		

Figure 4. General document review.

Reference Section	Acceptable	Unacceptable	Remarks
1. <u>Clarity</u>			
1a			Catchwords, colloquialisms
1b			Short thought units
1c			Logical sequence
1d			Paragraph construction/ headings
1e			Number of illustrations
1f			Correct illustrations
1g			Mechanical format
2. <u>Completeness</u>			
2a			Contents limited to needed information
2a(1)			Excessive information
2a(2)			Unnecessary duplication
2a(3)			Sufficient information
2b			Utilization of existing information
3. <u>Correctness</u>			
3a			Current Knowledge Reflected
3b			Remarks Adequately Referenced
3c			Remarks Factually Correct
3d			Lack of Bias
3e			Environmental Implications Identified
Recommendation			
Signature _____		Date _____	
Title _____		Concur _____	
		Signature _____	
		Date _____	
		(Responsible Official)	
		Title _____	

Figure 5 General document review summary

4 TECHNICAL REVIEW

The technical review process is designed to give the reviewer guidance in determining the technical adequacy of an EA/EIS. The chapter is divided into four sections. The first section presents the reviewer with instructions about use of the technical review tests in the second section. Section three is a technical review summary to be completed as an aid for decision-making. The final section (beginning on p50) is a glossary of selected technical terms from the second section.

Reviewer Instructions

The technical environmental review process in this guide is based on a sequence of test questions designed to help the reviewer through mutually exclusive subject areas to determine the technical adequacy of the EA/EIS. For orderly and comprehensive review, the test questions have been classified into 13 areas, each of which is addressed separately in **Questions for Technical Review**, p 23. These areas correspond to the 13 categories of the Environmental Impact Computer System (EICS), providing the reviewer an opportunity to test the computer-aided system against the review described in this report. The 13 major areas are further divided into 58 subareas, which represent the smallest units for review in this system.

The forms (Figures 6 through 18, pp55 through 67) summarizing each of the 13 areas have been designed to help the reviewer perform two tasks. The first task is to evaluate the adequacy of the EA/EIS document. This is done by assigning one of three ratings of document adequacy to each question covering an environmental category.

1. Insufficient information: the document does not present enough information to allow one to answer a review question.

2. Incomplete information: the document presents some information about the subject of the questions posed, but that information is not adequate to support the conclusion drawn about environmental impacts. (The reviewer will rate the environmental impacts themselves later. The reviewer should decide whether supporting information cited, but not included, in the EA/EIS should actually be made part of the document -- perhaps placed in an appendix).

3. Adequate: the information presented adequately covers the environmental effects addressed by the particular question.

The reviewer's second task is to analyze the impact of the activities addressed by the document. This is done by assigning one or more of five categories of environmental impact to each question associated with a particular environmental category:

1. No impact: it is unlikely that an environmental problem will occur if the project is implemented as planned.

2. Minor impact: an environmental problem is likely to occur, but the effects will not be severe. Mitigative actions, if implemented, will reduce the potential problem.

3. Major impact: a severe environmental problem will probably occur if the project is implemented as planned and no mitigative action is proposed, or none is possible.

4. Violates standards: the proposed action will violate a Federal, state, or local standard or regulation.

5. Environmentally Controversial: the project may be either (a) scientifically controversial because scientists may genuinely disagree about the exact impact of the proposed action, or (b) publicly controversial in that the action may generate strong emotions among the public either for or against it.

A subarea may be rated in more than one level -- e.g., a particular impact may be both major and controversial. Assessments of each subcategory are to be recorded on the forms in Figures 6 through 18.

Many of the instructions in **Questions for Technical Review** refer to the need or desirability for mitigative measures. The reviewer should understand that any mitigation proposals specifically included in the EA/EIS represent a commitment on the part of the U.S. Army. Therefore, such commitments

should be spelled out in as much detail as possible. Vague mitigation techniques should not be accepted.

Each alternative course of action being actively considered should be evaluated using the material in **Questions for Technical Review**. The individual technical review forms (Figures 6 through 18) and the technical summary (Figure 19) may be labeled to indicate which alternative is being evaluated.

Questions for Technical Review

The Technical Review of an EA/EIS is to be completed by determining the adequacy of the document in the following technical areas and subareas:

Ecology

1. Nutrient Cycling
2. Plant and Wildlife Species
3. Diversity
4. Productivity

Health and Safety

1. Health Care
2. Solid Waste Disposal
3. Water Supply
4. Safety
5. Radiation
6. Stress
7. Disease
8. Electromagnetic Spectrum

Air Quality

1. Generation and Dispersion of Contaminants
2. Toxic Air Pollutants
3. Odor
4. Climate and Air Quality

Surface Water

1. Drainage/Channel Form
2. Sedimentation
3. Water Quality
4. Flooding
5. Storm Water Drainage
6. Flow Modification

Groundwater

1. Groundwater Quantity
2. Groundwater Quality
3. Depth of Water Table

Sociology

1. Educational Services
2. Recreation/Cultural Facilities
3. Social Services
4. Police Protection
5. Fire Protection
6. Community Profile

Economics

1. Employment
2. Land and Property Values
3. Income
4. Regional Economic Activity

Earth Science

1. Slope Stability
2. Erodibility
3. Subsidence
4. Foundation Support
5. Earthquake Hazard

Land Use

1. Mineral Resources
2. Wetlands/Coastal Zones/Shorelines
3. Forest and Range Fires
4. Prime and Unique Farmlands
5. Sanitary Landfills
6. Climatic Hazards
7. Induced Land Use Changes

Noise

1. Noise
2. Vibration

Transportation

1. Road Transportation
2. Rail/Air/Water Transportation
3. Off-Road Vehicles

Aesthetics

1. Design Composition
2. Environmental Amenities
3. Archaeological and Cultural Resources

should be spelled out in as much detail as possible. Vague mitigation techniques should not be accepted.

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Noise

1. Noise
2. Vibration

Transportation

1. Road Transportation
2. Rail/Air/Water Transportation
3. Off-Road Vehicles

Aesthetics

1. Design Composition
2. Environmental Amenities
3. Archaeological and Cultural Resources

Energy and Resources

1. Energy Requirements
2. Conservation Measures
3. Environmental Resource Degradation

Ecology

1. Nutrient Cycling

Could the project activity, as described by the document, potentially disrupt the natural flow of materials necessary for floral and faunal growth by impoverishing one area (causing nutrients to flow from it), or by polluting another area with an overabundance of nutrients released from the project area?

No: Continue to 2a.

Yes; or Incomplete Information: The EA/EIS should:

- a. Indicate anticipated impact of the proposed project on nutrient cycling;
- b. Estimate areal extent of the impact;
- c. Specify what safeguards and mitigative actions are planned, including specific measures to prevent water pollution or rises in water temperature.

2. Plant and Wildlife Species

a. Could the project activity, as described by the document, impact any unusual, desirable, protected, threatened, or endangered plant or wild animal species, their habitat, or any unique or rare ecosystems?

No: Continue to 2b.

Yes; or Incomplete Information: The EA/EIS should describe key or major aquatic, terrestrial, and riparian ecological communities.

(1) If desirable or unusual species or rare/unique ecosystems will be impacted, the EA/EIS should estimate the potential impact of the proposed project on the affected species/ecosystems. If negative impacts will occur, the document should indicate planned mitigative measures.

(2) If threatened, protected, or endangered species (or their habitats) covered by Federal and state endangered species acts will be impacted, the EA/EIS should indicate species or habitats impacted and why. If negative impacts occur, indicate:

- Mitigative measures to ensure the protection of species or habitats.
- Variation in environmental effects among alternative proposals or locations, including sites outside the installation or on other military installations;
- Schedule and status (1) of consultations with the Fish and Wildlife Service, (2) of any biological assessment (required by the Federal Endangered Species Act of 1973, as amended), and (3) of an Endangered Species Review Board or Endangered Species Committee action if exemption has been applied for.

If the presence of threatened, protected, or endangered species is seasonal, the EA/EIS should indicate whether the project will be scheduled during nonconflicting seasons, or if not so scheduled, why not.

b. Will the project activity, as described by the document, promote conditions favorable for the proliferation of nuisance or pest plants and wildlife?

No: Continue to 2c.

Yes; or Incomplete Information: The EA/EIS should indicate what measures are planned to prevent an increase in undesirable species such as mosquitos, rats, or weeds

c. Will all impacts (including secondary effects of the proposed project) described by the document be confined within an existing cantonment or developed area?

No: Continue to 2d.

Yes: If any of the previous questions in this section have been answered "Yes," then continue to 2d. If all previous questions have been answered "No," and the EA/EIS thoroughly describes means by which all impacts will be restricted to any site already developed, then complete the Ecology Summary and continue to *Health and Safety*.

d Will the project activity, as described by the document, reduce or destroy food or habitat of importance to terrestrial, riparian, or aquatic fauna or to a number of different species?

The EA/EIS should discuss the impact of the proposed project on the surrounding area's capacity to support wildlife. The document should include a judgment regarding the project's impact on (1) disturbance of threatened and endangered species; (2) primary changes in vegetation caused by alteration of the site condition; (3) secondary changes in flora and fauna resulting from the primary changes; (4) spawning or nesting areas and migratory patterns.

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should indicate possible actions to lessen the project's adverse impacts. The question of relocating displaced species should be fully addressed because of the probability that once habitat is lost, wildlife supported by it is also lost.

3. Diversity

a. Is there substantial diversity, as discussed in the document, in the natural community of the impacted area as reflected in (1) the number and types of plant or animal species present, and (2) the three-dimensional arrangement of plant species present?

The EA/EIS should contain an analysis of both species and spatial diversity of the area impacted by the project activity. This analysis should include a comparison to a typical undisturbed site. Or, if appropriate, the diversity at the present site of activities should be compared to the projected diversity caused by the project or activity.

No: Continue to 3a(1).

Yes; or Incomplete Information: Continue to 3a(2).

(1) Does the document indicate that diversity of the vegetative community is so low as to render it particularly susceptible to impact from human activity?

An area with low diversity compared to an undisturbed state may have been impacted. For example, parade grounds and tank trails. Some areas are "naturally" less diverse than others -- a desert is not as diverse as a tropical forest. A loss to an area that is not naturally diverse but has had little disturbance may be more critical than a loss to an area whose diversity has already been impacted.

Yes; or Incomplete Information: The EA/EIS must assess the project's impact on the current vegetation, especially in regard to wildlife species it supports and to its relationship with surrounding ecosystems. Continue to 3a(2).

No: Continue to 3b.

(2) Does the document indicate that the diversity of the vegetative community within the impacted area is great enough to make it especially valuable (compared to other areas in the vicinity) for its capacity to support wildlife, or for aesthetic reasons?

The loss of any organism to a system has the potential for catastrophic results. The diverse system can be considered a complicated set of checks and balances. As the checks and balances are tampered with, the possibility of undesirable effects such as pest outbreaks increases. These systems can, however, endure more of some types of impacts than can the less diverse systems.

No: Continue to 3b.

Yes; or Incomplete Information: The EA/EIS should show if other project locations are available and, if so, why they are unacceptable for the proposed project. If negative impacts will occur, the docu-

ment should specify what mitigative measures are planned -- for example, minimizing site clearing to reduce vegetative disruption and modifying the project to preserve especially diverse ecosystems.

Continue to 3b.

b. Does the document indicate if the project activity will result in any recreational gain/loss with regard to such activities as hunting, fishing, camping or hiking, nature study, and photography?

No: Continue to subarea 4.

Yes; or Incomplete Information: The EA/EIS should show the nature of the project's impact and indicate measures to lessen any adverse impacts.

4. Productivity

a. The document must evaluate the site(s) to be used by the project activity and any other areas the activity will affect. Does this evaluation indicate changes in productivity at proposed alternative site locations?

Productivity is a measure of the site's ability to support plant and animal life. The use of certain highly productive sites has come under increasing scrutiny -- especially prime and unique farmlands, and estuarial and coastal regions. If an evaluation has not been made, then an assessment of the sites' productivity and any projected changes should be conducted by a scientist trained in an appropriate discipline. For example, farmlands should be examined by agronomists, managed forests by foresters, other terrestrial systems by plant and/or animal ecologists, and aquatic sites by aquatic ecologists.

No: Without such an evaluation, the remaining tests in this section cannot be completed. The summary sheet should be annotated to indicate that subarea 4 cannot be evaluated because of this deficiency.

Yes; or Incomplete Information: Continue to 4b.

b. According to the document, does the site of the project have any of the following characteristics: (1) Low productivity compared to other areas in the vicinity; (2) High productivity, but is a location surrounded by similar larger sites.

No; or Incomplete Information: The EA/EIS should justify the reasons for not selecting an alternative location and indicate what ameliorative measures will be taken.

Yes: Continue to 4c.

c. Will the project/activity significantly affect the productivity of sites other than the actual site of the activity or project?

This generally refers to: (1) the effects on streams and lakes from point or nonpoint sources of runoff; (2) the effects on vegetation from transported air pollutants; or (3) the effects of noise pollution on animal productivity, prime breeding grounds, or nesting sites.

No: Complete Ecology Summary (Figure 6).

Yes; or Incomplete Information: The EA/EIS should justify the reasons for not selecting an alternative location and indicate any mitigative measures that will be taken.

Ecology Summary is now complete.

Health and Safety

1. Health Care

a. Are provisions for and access to quality health care adequate to meet needs of project personnel?

No; or incomplete information: The EA/EIS should indicate:

- Any existing health care deficiencies;
- Whether the proposed project will aggravate these deficiencies and whether it will overload other services or facilities;

- Measures to alleviate anticipated deficiencies in health care services;
- Whether the project will require any special health care services during its construction and/or operation.

Yes: Continue to 1b.

b. Will the project activity interfere with any health care services?

No: Continue to subarea 2.

Yes; or Incomplete Information: The EA/EIS should indicate:

- What services will be impeded;
- Frequency and duration of the interference;
- Contingency measures to minimize the adverse impacts.

2. Solid Waste Disposal

a. Will the project activity generate solid waste?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should indicate the anticipated type and quantity of wastes generated.

b. Will the project's solid waste be disposed in an environmentally sound manner -- for example, by incineration or in a sanitary landfill?

The EA/EIS should indicate how the solid waste will be disposed. If recycling is feasible, refer to *Energy and Resources Conservation Measures*, p49) for tests to be applied.

No; or Incomplete Information: The EA/EIS should identify the nature of any waste disposal deficiencies, such as an adverse effect on groundwater quality or the fact that the project's waste will exceed the capacity of the disposal facility. Planned measures either to upgrade existing facilities or to secure new disposal facilities with adequate environmental safeguards should also be included. Complete 2b(1).

Yes: Continue to subarea 3.

(1) Will the project activity generate toxic or hazardous wastes requiring special disposal procedures?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should specify both the nature of the toxic wastes and special steps taken in disposing of them to comply with applicable Federal, state, or local regulatory agency regulations.

3. Water Supply

Are there provisions for an adequate quantity and quality of water to meet the needs of the project activity?

No; or Incomplete Information: If an existing installation or public water supply system is not available or cannot meet the project's requirements, the EA/EIS should indicate how the water requirements for both the construction and operational phases of the project will be satisfied. If an individual water system is planned, the EA/EIS should indicate the conformity of its water quality with existing Surgeon General (TSG)/Environmental Protection Agency (EPA) drinking water standards.

Yes: Continue to subarea 4.

4. Safety

a. Do project site conditions or those in the surrounding area create potentially unsafe conditions?

No: Continue to 4b.

Yes; or Incomplete Information: The EA/EIS should indicate:

- Nature of the unsafe conditions including frequency, duration, and risk of injury;
- Possible measures to eliminate or reduce the hazards;
- If hazards cannot be reduced, rationale for not selecting alternate site locations.

b. Will the project activity create safety hazards or involve the use of hazardous materials such as munitions or gasoline?

No: Continue to subarea 5.

Yes; or Incomplete Information: The EA/EIS should estimate the likelihood of injuries or deaths occurring as a result of the project's construction, maintenance, and/or usage. It should also indicate what will be done to minimize the hazards.

5. Radiation

Will the project activity involve the use of ionizing (alpha, beta, gamma, and X-ray), microwave, laser, or other (infrared, ultraviolet, and visible light) radiation, or high-tension electric wires?

No: Continue to subarea 6.

Yes; or Incomplete Information: The EA/EIS should separately estimate the risk of exposure and summarize the personnel and safety precautions which will be incorporated into the project for both indoor and outdoor uses. For outdoor uses, it should also discuss possible effects on plants and animals. The source, type, and levels of radiation emission(s) should be stated.

6. Stress

Will project personnel and/or the public be exposed to stressful situations as a result of the project activity?

No: Continue to subarea 7.

Yes; or Incomplete Information: The EA/EIS should indicate:

- a. The type, frequency, and duration of the stressful situations which may occur;
- b. Number of personnel subject to stress conditions;
- c. Anticipated stress reactions or manifestations, such as number of increased incidents of alcohol/drug abuse, psychological disorders, or marital discord;
- d. Measures to eliminate or reduce the stress.

7. Disease

Will project personnel and/or the public be exposed to an increased incidence of disease as a result of the project activity or its location?

No: Continue to Subarea 8.

Yes; or Incomplete Information: The EA/EIS should:

- a. Estimate the nature of the increased disease morbidity and mortality levels;
- b. Identify susceptible segments of the public or project personnel;
- c. Specify measures to reduce or eliminate the incidence of disease.

8. Electromagnetic Spectrum

Will the proposed action potentially affect the electromagnetic spectrum?

No: Complete Noise Summary (Figure 7).

Yes; or Incomplete Information: The EA/EIS should indicate whether there will be a positive or negative impact on the electromagnetic spectrum as a result of the project. If the project activity will be a source of electromagnetic radiation, the EA/EIS should evaluate the following factors for their potential to interfere with other operations (e.g., radio, television, radar, and communications stations) using the electromagnetic spectrum: location of radiating equipment, operating frequencies, power output

levels, antenna gain, and modulation characteristics.

Health and Safety Summary is now complete.

Air Quality

1. Generation and Dispersion of Contaminants

a. Will the project activity generate air emissions (including dust and fumes) on site or by induced traffic?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should specify:

- Existing installation or local meteorological data, including air temperature, humidity, wind direction and speed, and precipitation for seasonal conditions comparable to the planned activity.
- Source, composition, and ambient levels of current and projected emissions.
- Synergistic or additive effect of emissions.
- Description of adjacent downwind land uses.
- Nature of terrain (valley, mountains, flat land) and vegetative cover (sparse, dense, medium).
- Dispersion models, if used, should incorporate seasonal, climatic, and topographic factors.
- Description of data sources.

b. Will the project activity require a direct or indirect review or permit application at the Federal, state, or local level?

No: Continue to subarea 4.

Yes; or Incomplete Information: The EA/EIS should indicate:

- Applicable review/permit requirements.
- If existing air pollution levels exceed Federal and state National Ambient Air Quality Standards (NAAQS).
- If the project activity will be located in an air quality maintenance area or nonattainment area.
- The applicability of EPA's "Emission Offset Policy," and prevention of significant deterioration regulations.
- If the project activity will remain subject to state or regional new source performance standards.

c. Will the project activity have an adverse effect on the attainment and maintenance of the NAAQS or result in significant air quality deterioration?

No: Continue to subarea 2.

Yes; or Incomplete Information: The EA/EIS should detail:

- Offending pollutant(s);
- Length of time and degree to which NAAQS will be exceeded;
- Sensitive receptors in the biotic community (children, elderly, plant and animal life) in terms of numbers and structure;
- Long-term considerations such as the relationship between the project activity, prevailing wind patterns, and seasonal and annual air quality in the impacted area;
- Ability of pollutants to accumulate in natural sinks;
- Mitigative procedures;
- If control measures available to the Army proponent appear to be inadequate, the alternative measures which are not currently practicable as a commitment of the activity proponent, but which are technically feasible, should be identified.

2. Toxic Air Pollutants

Will any project-generated emissions be radioactive, pathogenic, hazardous, or toxic air pollutants?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should discuss:

- Anticipated types and quantities of these pollutants that might be released to the atmosphere by the project.
- Areas that may be affected, their associated land uses, and their risk factors to humans; privately owned resources such as farmland, or other important lands or parties that might be affected.
- Long-term considerations such as pollutant accumulation in natural sinks.
- Proposed emission control measures and their likelihood of success.

3. Odor

Will the project activity generate any odors?

Potential odor sources include such activities as industrial operations sanitary landfills, incinerator operations, and wastewater treatment facilities.

No: Continue to subarea 4.

Yes; or Incomplete Information: The EA/EIS should identify:

- Size and location of the potentially affected populace and particular identification of sensitive land uses such as hospitals or restaurants.
- Odor intensity and/or number of days per month or year when a problem can be expected; current complaint record for any similar existing odor source.
- Steps to be taken to prevent new or increased odor problems from becoming a public nuisance.
- If any local or state regulations will be violated.

4. Climate/Atmosphere Quality

Will the project activity potentially alter the regional climate (increases, decreases in temperature, precipitation) or surface insolation by releasing large quantities of heat, smoke, or particulates into the atmosphere?

No: Complete Air Quality Summary (Figure 8).

Yes; or Incomplete Information: The EA/EIS should present:

- Anticipated alteration of climate and/or atmospheric quality and its probable impact on the regional population, vegetation, and animals (domestic and wild).
- If feasible, measures to minimize the adverse impacts.

Air Quality Summary is now complete.

Surface Water

1. Drainage/Channel Form

Will the project activity or its construction impede the natural drainage pattern or cause alteration of stream channel form?

No: Continue to subarea 2.

Yes; or Incomplete Information: The EA/EIS should indicate the magnitude of the drainage modification and relate its potential impact on downstream ecological communities, water quality, and quantity. If rare and endangered organisms are encountered, the document must discuss both the impact on these organisms and mitigative actions being taken.

2. Sedimentation

Will the project activity or its construction result in a measurable sediment influx into waterways?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The anticipated amount of the sediment influx;
- Its probable and potential impact, particularly on aquatic organisms;
- What measures, if any, will be taken to minimize erosion and to prevent the sediment from entering into streams.

3. Water Quality

a. Will the project activity be a point or nonpoint source of water pollution (including thermal pollution)?

No: Continue to subarea 4.

Yes; or Incomplete Information: The EA/EIS should specify the types and quantities of wastes which will be generated:

- If wastes will be discharged into an existing wastewater treatment facility, complete 3a(1).
- If septic tanks will be used, refer to *Groundwater (Depth of Water Table, p35)* for tests to be applied.
- If wastes will be treated by a new facility and/or discharged directly into a stream channel, complete 3a(2).
- If toxic pollutants will be produced, complete 3a(3).
- If the project activity will be a nonpoint source of pollutants, complete 3a(4).

(1) The EA/EIS should indicate:

- If a National Pollutant Discharge Elimination System (NPDES) permit has been issued, and if the operation of the existing treatment facility complies with its provisions;
- The adequacy of the existing facility both in terms of capacity and capability to treat the project's waterborne wastes.

If the project's wastes will overload the treatment facility, the EA/EIS should tell what measures are planned to upgrade treatment capacity or capability.

(2) The EA/EIS should specify how the waterborne wastes will be disposed in relation to:

- The area's surface water hydrology;
- Existing water quality and stream standards;
- Basin plans, or areawide waste treatment management plans (Section 208 plans);
- Determination if project requires an NPDES permit, and, if so, what the permit requirements will be;
- The effects of any new discharge, whether direct or treatment plant discharge of the receiving water body's flora and fauna.

(3) The EA/EIS should specify the intended method of waste disposal, including precautions against the inadvertent discharge of pathogens or toxic substances into the normal disposal system above levels established by EPA. The possibilities and effects of accidental discharge should also be discussed.

(4) The EA/EIS should discuss:

- The area's surface water hydrology;
- Existing water quality and stream standards;
- Effect of the project-generated pollutants on basin plans, state waste-load allocations, or area-wide waste treatment management (Section 208) plans;

- Possible preventive or mitigative actions;
- The effects of the pollutants on the stream's flora and fauna.

b. Will the pollutants generated by the project activity have a significant impact on the receiving stream?

No: Continue to subarea 4.

Yes; or Incomplete Information: The EA/EIS should catalog the effect on the following:

- Flora and fauna;
- Wetlands and other biologically sensitive areas;
- Use of downstream water for drinking and recreation;
- Attainment and maintenance of stream standards;
- Analysis of the cumulative impact on the receiving stream; for example, coupling thermal discharges from other existing facilities with the proposed action;
- Any measures being taken to reduce the impact of these pollutants.

4. Flooding

a. Will the project activity be within the 100-year floodplain?

No: Continue to 4b.

Yes; or Incomplete Information: The EA/EIS should indicate the compatibility of the proposed activity with its floodplain location and assess the risks to life and/or property due to flooding.

b. Will there be any increased water flow caused by structural obstructions; reduced water absorption capability of such areas as marshes, swamps, or stream channels; or increased runoff due to the project activity?

No: Continue to subarea 5.

Yes; or Incomplete Information: The EA/EIS should evaluate if the increased water volume will:

- Cause environmental damage to aquatic life;
- Increase erosion and sedimentation;
- Result in increased downstream flooding. If the increased flow volume will be significant or cause significant effects on aquatic life or water quality downstream, the EA/EIS should address preventive measures such as retention of water during peak periods of flow.

5. Storm Water Drainage

a. Will the project activity result in an increase in storm water drainage?

No: Continue to subarea 6.

Yes; or Incomplete Information: Complete 5b.

b. Will all storm water runoff from the project discharge into a wastewater treatment facility?

No; or Incomplete Information: The EA/EIS should indicate what alternative provisions for storm water drainage will be used, such as use of the natural drainage system, or controlled ponding. Specific mention of the runoff's impact on downstream flooding and on water quality should be included.

Yes: The EA/EIS should specify if the treatment facility has enough capacity to treat the storm water runoff -- and, if not, what measures are planned to prevent overloading the system.

6. Flow Modification

a. Will the project activity alter the flow characteristics of any streams or bodies of water?

No: Complete Surface Water Summary (Figure 9).

Yes; or Incomplete Information: The EA/EIS should indicate if the impact will be diurnal or seasonal, sporadic or permanent, and whether the project will require an Army Corps of Engineers Dredge

and Fill permit under Section 404, Public Law 92-500 (Federal Water Pollution Control Act Amendments of 1972). It should also evaluate the impact of the alteration on:

- Riparian/aquatic flora;
- Fish and other fauna;
- Salt water intrusion;
- Flushing of estuaries.

b. Will there be a reduction in water supply as a result of the proposed action?

No. Continue to 6c.

Yes; or Incomplete Information: The EA/EIS should indicate what measures, if any, will be taken to make up the loss.

Complete 6b(1).

(1) Will the flow depletion impact downstream water rights or water supply sources?

No. Continue to 6c.

Yes; or Incomplete Information: The EA/EIS should specify the extent to which water rights and/or water supplies will be impacted, what ameliorative measures are possible, and what legal obligations will be incurred.

c. Will the flow modification affect aquatic recreational activities?

No. Complete Surface Water Summary.

Yes; or Incomplete Information: Based on the extent of the flow modification and the nature of downstream recreational activities, the EA/EIS should estimate the recreational impact and indicate possible mitigative actions.

Surface Water Summary is now complete.

Groundwater

1. Groundwater Quantity

a. Will the project activity cause a decrease in the rate of groundwater recharge through such actions as reducing the amount of porous surface area or eliminating large areas of vegetation over an aquifer recharge zone?

No. Continue to 1b.

Yes; or Incomplete Information: The EA/EIS should estimate the amount and the impact of the diminished recharge on aquifer yields and quality. The decrease in recharge abilities should be reported in terms of the reduction of water supplies upon which "x" number of people rely. The EA/EIS should also consider possible mitigative measures, such as the use of porous pavement.

b. Will the project activity result in increased groundwater withdrawal?

No. Continue to 1c.

Yes; or Incomplete Information: The EA/EIS should estimate the potential changes in the volume and timing of the discharge and recharge within the hydrologic system by considering the following:

(1) Alteration of groundwater discharge which maintains area streams, ponds, wells, flora, and fauna;

(2) Water table fluctuation;

(3) Change in groundwater flow direction;

(4) Increased surface infiltration; and

(5) Aquifer yields and quality under conditions of prolonged drought

c. Will the project activity encourage or foster further development over aquifer recharge zone?

No: Continue to subarea 2.

Yes; or Incomplete Information: Even if the project activity will have a relatively minor impact, the EA/EIS should consider the cumulative effect on both recharge quantity and quality if other development is likely to follow.

2. Groundwater Quality

a. Will the project be located over, or will its surface runoff flow into, an aquifer recharge zone, thereby potentially affecting groundwater quality?

No: Continue to 2c.

Yes; or Incomplete Information: The EA/EIS should indicate areal groundwater hydrology (including flood likelihood), existing levels of water quality within the aquifer, existing and projected water users, type and amount of contaminants which might be flushed from the project site, and their impact on aquifer use.

Complete 2a(1) and 2a(2).

(1) Is the recharge zone considered to be a rapid recharge area, where degradation of groundwater quality can easily occur -- e.g., karst topography?

No: Continue to 2a(2).

Yes; or Incomplete Information: The EA/EIS should indicate what special precautions -- for example, regular cleaning of parking areas -- are planned to avoid groundwater contamination.

(2) Will the project activity have a significant impact on groundwater used for regional water supply?

No: Continue to 2b.

Yes; or Incomplete Information: The EA/EIS should specify the number of water supplies, wells, springs, and people affected. It should also estimate the increased costs required for additional water treatment and indicate who will pay them.

(3) Will change in depth alter underground flow patterns resulting in change in quality of available water?

No: Continue to 2b.

Yes; or Incomplete Information: The EA/EIS should discuss the possible change in aquifer depth.

b. Will the project activity involve the storage or use of toxic materials such as chemicals, fertilizers, fuels, or pesticides?

No: Continue to 2c.

Yes; or Incomplete Information: The EA/EIS should indicate what special measures will be taken to prevent accidental release of these substances into the groundwater recharge system.

c. Will the project activity involve deep well injection?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should indicate compliance with state permit requirements.

3. Depth of Water Table

Will the rate of water withdrawal by the project activity change the depth and gradient of the underground water table?

No: Continue to 3b.

Yes; or Incomplete Information: For projects involving the potential lowering of water tables, the EA/EIS should evaluate the following impacts, as applicable:

- Water levels falling below existing wells;

- Increased well pumping costs;
- Salt water intrusion;
- Ground subsidence.

For projects which may raise the water table, the EA/EIS should indicate these potential impacts.

- Construction difficulties;
- Flooding of basements;
- Improper septic tank functioning.

b. Will the project activity involve the use of septic tanks?

No. Complete the Groundwater Summary.

Yes; or Incomplete Information: The EA/EIS should indicate conformance with any area-wide waste treatment management (Section 208) plans which may exist for the area. In the absence of such plans, the EA/EIS should specify compliance with state or local permit requirements.

Complete 3c.

c. Will impermeable layers or soils cause potential problems with groundwater contamination or drainage relative to septic tank development?

No. Complete Groundwater Summary (Figure 10).

Yes; or Incomplete Information: The EA/EIS should indicate the results of percolation tests and other engineering tests evaluating whether septic tanks will function properly.

Groundwater Summary is now complete.

Sociology

1. Educational Services

a. Will the proposed project alter the demand for educational services?

No. Continue to subarea 2.

Yes; or Incomplete Information:

(1) If school enrollment will decrease, the EA/EIS should specify the impact of the decreased enrollment in terms of number of pupils, loss of jobs, and reduced revenue for the affected schools. Continue to subarea 2.

(2) If the project activity will generate a demand for educational services currently unavailable, the EA/EIS should detail the new educational requirement(s), indicating how the demands will be satisfied and the associated costs. Continue to 1b.

(3) If school enrollment will increase, complete 1a(3b).

(a) Can the projected enrollments be handled in existing or proposed facilities?

No; or Incomplete Information: The EA/EIS should compare anticipated enrollment figures with design capacities and indicate both short-term and long-term mitigative measures such as the use of temporary classrooms, adoption of different teaching methods, and the construction of new schools.

Yes: Continue to 1a(3b).

(b) Will the anticipated enrollment generated by the proposed project exceed local pupil/teacher ratio standards?

No. Continue to 1b.

Yes; or Incomplete Information: The EA/EIS should compare projected with current pupil/teacher ratios, examine various alternatives for improving them, and consider the impacts of the alternatives.

b. Are school sites suitably located with regard to safety, travel time, and walking distance?

No; or Incomplete Information: The EA/EIS should specify short-term and long-term measures to increase safety or decrease travel time/walking distances, such as the use of school crossing guards.

more direct bus routes, and the location of future schools.

Yes: Continue to subarea 2.

2. Recreational/Cultural Facilities

a. Will the proposed project increase the demand for recreational/ cultural facilities?

No: Continue to 2b.

Yes; or Incomplete Information: The EA/EIS should specify if existing or proposed recreational and cultural facilities can meet the increased demand. If certain facilities are inadequate, the document should identify them and indicate what actions are planned to meet the project's requirements. It should also indicate if the facilities will be readily accessible and safe.

b. Will the project activity increase or decrease recreational and/or cultural opportunities?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should:

- (1) Identify the increased/decreased opportunities;
- (2) Evaluate their impact in terms of man-days gained or lost; and
- (3) Estimate the value of the opportunities gained or lost in relation to other available recreational and cultural facilities (uniqueness, size, accessibility).

Continue to subarea 3.

3. Social Services

a. Will the proposed project alter the demand for social services?

No: Continue to subarea 4.

Yes: Complete 3b.

b. Are provisions for access to quality social services adequate to meet the requirements of the proposed project?

No; or Incomplete Information: The EA/EIS should summarize what services are generally available (day care centers, drug abuse programs, youth services, family planning); which services, if any, are unavailable or inadequate; and what plans are being considered to improve them.

Yes: Continue to 3c.

c. Will adequate housing for different socioeconomic segments be available to meet the demands of the proposed project?

No; or Incomplete Information: The EA/EIS should indicate the anticipated shortages and specify what temporary and long-term measures are planned to house project personnel and their families.

Yes: Continue to 3d.

d. Are available utilities (electricity, natural gas, telephone, water) adequate to meet the demands of the proposed project -- including off-installation housing?

No; or Incomplete Information: The EA/EIS should indicate potential utility inadequacies, the nature of their anticipated impact, and plans to alleviate the problem.

Yes: Continue to subarea 4.

4. Police Protection

a. Will existing police services be adequate to protect the population and the facilities of the project activity?

No; or Incomplete Information: The EA/EIS should indicate what additional services will be required and whether they will be provided by military police, civilian police, or a combination of both.

Yes: Continue to 4b.

b. Will the proposed project contribute to an increase in crime rates and/or crime victimization rates?

No: Continue to subarea 5.

Yes; or Incomplete Information: The EA/EIS should indicate the crime statistics associated with the particular changes in population generated by the project activity. It should also evaluate their impact on the surrounding community.

5. Fire Protection

Will the project activity have adequate fire protection services?

No: The EA/EIS should indicate:

- Whether the proposed project will use military and/or civilian fire protection services;
- Special fire protection requirements, if any;
- Planned measures to improve the fire protection services, such as obtaining additional personnel or equipment.

Yes; or Incomplete Information: Continue to subarea 6.

6. Community Profile

a. Will the project activity change the character of the community in terms of distribution or concentration of income, ethnic, racial, age, sex, or educational groups?

No: Continue to 6b.

Yes; or Incomplete Information: The EA/EIS should indicate the nature of the anticipated changes, the expected community reaction, and mitigative measures to reduce any negative feelings towards the proposed project.

b. Will the project activity cause or contribute to a breakdown in community cohesion?

No: Continue to 6c.

Yes; or Incomplete Information: The EA/EIS should evaluate the impact of the proposed project on the community in terms of outmigration, disruption of social interactions, changes in behavior and attitudes, and breakdowns in important local institutions. (For example, routing a highway through a neighborhood might cause some or all of these disruptions.) Measures to lessen the impacts should be included.

c. Will people have to move because of acquisition of land and/or buildings for the proposed project?

No: Complete Sociology Summary (Figure 11).

Yes; or Incomplete Information: The EA/EIS should specify:

- Number of individuals/families to be displaced;
- Potential impact of the displacement on the surrounding neighborhood;
- Availability and acceptability of suitable housing for the displaced individuals;
- General description of the socioeconomic characteristics of the displaced individuals.

Sociology Summary is now complete.

Economics

1. Employment

a. Will the project activity eliminate or relocate any existing jobs?

No: Continue to 1b.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The number and types of jobs to be eliminated/relocated;
- Numbers of workers likely to relocate with their job;
- Number of workers on severance pay;
- Anticipated number of workers who will emigrate for new jobs;
- Number of workers who will accept early retirement and remain in the area;
- Mitigative actions to be explored for those workers who might have a hard time finding a new job due to specialized or low skills;
- Overall economic impact on the local community due to the loss of jobs.

b. Will the project activity generate additional jobs?

No: Continue to subarea 2.

Yes; or Incomplete Information: The EA/EIS should estimate the numbers and income of new jobs generated by the project activity and by businesses that might develop as a result of the project. The document should also indicate if the positions will be short-term (construction phase) or long-term (operation and maintenance phase).

Complete 1c.

c. Will the necessary skills be available locally to fill the new jobs?

No; or Incomplete Information: If the necessary skills are not locally available, the EA/EIS should indicate potential sources and the impact, if any, additional workers might have on the local economy.

Yes: Continue to subarea 2.

2. Land and Property Value

Will the project activity produce or encourage changes in existing land uses, thereby encouraging land speculation or otherwise affecting land and property values?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should indicate the impact of the proposed project on land uses and subsequent property values. It should also specify possible measures to offset speculation or decrease in land or property values.

3. Income

a. Will the project activity impact income levels either directly or indirectly?

No: Continue to 3b.

Yes; or Incomplete Information: The EA/EIS should compare the project's impact on the real income of individuals and families in various affected populations grouped by race, ethnic origin, age, sex, and income. Both short-term and long-term impacts should be addressed. Complete 3b.

b. Will the project activity cause a change in income distribution among the various population groupings?

No: Continue to 3c.

Yes; or Incomplete Information: The EA/EIS should estimate the extent of the income distribution and indicate whether the change will cause an intensification or a reduction in regional income disparities.

c. Will the project activity significantly increase or decrease the local purchase of goods and services?

No: Continue to subarea 4.

Yes; or Incomplete Information: The EA/EIS should estimate the impact of the increase or decrease, including the types of goods and/or services affected and their associated income.

4. Regional Economic Activity

a. Will the project activity impact public sector revenues or expenditures?

No: Continue to 4b.

Yes; or Incomplete Information: The EA/EIS should indicate:

- Public sector activities which will be affected;
- Nature of the impact: temporary or permanent, severe or mild, positive or negative;
- How the quantity and/or quality of services delivered to the community will be affected; and
- Mitigative measures in the event the impact is negative.

b. Will the project activity affect the level of economic activity in the private sector?

No: Complete Economics Summary (Figure 12).

Yes; or Incomplete Information: The EA/EIS should indicate:

- Private-sector activities which will be affected;
- Nature of the impact: short-term or long-term, severe or mild, positive or negative;
- Whether the impact will increase or decrease the region's economic stability or diversity;
- Mitigative measures if the impact is negative.

Economics Summary is now complete.

Earth Science

1. Slope Stability

a. Will there be a risk of losses (of soil, property, or human life) due to lack of slope stability caused by the project?

No: Continue to 1b.

Yes; or Incomplete Information: The EA/EIS should specify:

- The nature of the soil, the unconsolidated material below the soil, and the bedrock on slopes to be included in the project;
- Whether there have been any slope alterations and/or history of slope failure;
- The potential losses which might occur as a result of slope instability; and
- Preventive and/or mitigative measures which might minimize the danger of slope failures.

b. Will the project activity be exposed to dangers from slope instability?

No: Continue to subarea 2.

Yes; or Incomplete Information: The EA/EIS should indicate:

- Risk of potential losses, such as soil, property, human life;
- Possible engineering and design precautions to minimize the danger, and a history of their effectiveness if they have been previously used in the area;
- Unacceptability of alternate site locations not subject to slope instability dangers.

2. Erodibility

a. Will the project's construction or post-construction activities cause a loss of soils or soil fertility?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should specify:

- Site clearing requirements and soil conditions,
- Comparison with alternative sites if project location has a high erodibility factor; and
- Preventive or mitigative measures to reduce erosion such as mulching or retention ponds.

Complete 2b.

b. Will soil losses result in secondary damage to surface waters or land forms, violating Federal, state, or local standards?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The nature of the secondary damages;
- Applicable standards;
- Methods for preventing or reducing erosion and/or mitigating its impact, especially if the project is located near a stream or body of water.

3. Subsidence

a. Will the project activity increase the risk of subsidence in the surrounding area?

No: Continue to 3b.

Yes; or Incomplete Information: The EA/EIS should indicate:

- Potential rate of subsidence and its areal extent;
- Estimation of damage to potentially impacted structures and activities;
- Measures to decrease the rate of subsidence and/or moderate its impact.

b. Will the project activity be located in an area characterized by any of the following:

- A history of subsidence;
- Extensive limestone formations (karst topography);
- Extensive subsurface mining or other resource extraction; or
- Extensive groundwater withdrawal?

No: Continue to 3c.

Yes; or Incomplete Information: The EA/EIS should indicate the steps which will be incorporated into the project activity to prevent or lessen the potential danger of subsidence.

c. Will the project activity involve construction such as buildings, sewage disposal works, pipelines, or roads?

No: Earth Science Summary is now complete.

Yes; or Incomplete Information: Continue to subarea 4.

4. Foundation Support

a. Will structures be placed on unconsolidated foundation materials?

No: Continue to 4b.

Yes; or Incomplete Information: The EA/EIS should specify the history of building in the area, if possible; estimate the risk to life and property resulting from possible foundation failure; and indicate measures to keep settlement within allowable limits (as established by state or local codes) to prevent damage to property.

b. Is there a potential for damages caused by soil shrinking and swelling due to changes in moisture content?

No: Continue to 4c.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The nature of the soils in the area,
- History of shrink-swell problems;
- Whether the project will cause any alterations in the water table; and

- Engineering and design precautions to be taken to minimize the danger.

c. Will there be risk of damage to structures due to frost action within the soils?

No: Continue to 4d.

Yes; or Incomplete Information: The EA/EIS should specify:

- The maximum depth of frost penetration and depth of structure foundation;
- An estimation of the risk of property damages;
- Mitigative measures such as removal of frost-susceptible soils; and
- Compliance with any local building code requirements.

d. Will the project activity be subject to damage from liquefaction of soils on slopes or under foundations?

No: Continue to subarea 5.

Yes; or Incomplete Information: The EA/EIS should assess the risk of liquefaction as well as potential losses of life and property.

5. Earthquake Hazard

Is there a potential risk of loss of life and property resulting from earthquake activity?

No: Complete Earth Science Summary (Figure 13).

Yes; or Incomplete Information: The EA/EIS should note if the project activity is located in seismic risk zone 0, 1, 2, or 3 and provide a history of any seismic activity. If there is a recognizable risk, the document should specify siting and design precautions which will be taken to minimize the risk.

Earth Science Summary is now complete.

Land Use

1. Mineral Resources

a. Are mineral deposits of potentially commercial value located on or close to the project activity site?

No: Continue to subarea 2.

Yes; or Incomplete Information: The EA/EIS should identify the mineral resources and estimate their potential short-term and long-term value.

Complete 1b.

b. Will the project activity interfere with or foreclose options for development of the mineral resources?

No: Continue to subarea 2.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The degree of interference of the proposed project;
- The short-term and long-term impacts of nondevelopment of the mineral resources in relation to local, regional, and national requirements;
- Possible actions to permit future development of the mineral resources.

2. Wetlands/Coastal Zones/Shorelines

a. Will the project activity directly or indirectly impact wetlands (marshes, swamps, bogs, tidal estuaries) through filling, dredging, diking, drainage, waste discharges, or other detrimental land use practices?

No: Continue to 2b.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The extent of encroachment or damage to the wetland and its ecology;
- The condition of the wetland (marginal, pristine, degraded);
- Whether state or local regulations governing wetlands will be violated;
- Whether the project will require an Army Corps of Engineers Dredge and Fill permit under Section 404, Public Law 92-500 (Federal Water Pollution Control Act Amendments of 1972);
- Reasons alternative sites are unacceptable; and
- Measures to lessen the project's adverse impact on the wetlands.

b. Will the project activity degrade coastal zones or shorelines through filling, dredging, waste discharge, or loss of visual quality?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The extent of the physical or visual impact;
- Compliance/noncompliance with state and local regulations governing coastal zones or shorelines;
- Whether the project will require an Army Corps of Engineers Dredge and Fill permit under Section 404, Public Law 92-500 (Federal Water Pollution Control Act Amendments of 1972);
- Reasons alternative sites are unacceptable; and
- Measures to lessen the project's adverse impacts.

c. Is the project activity likely to stimulate future development which will further impact the wetland, coastal zone, or shoreline?

No: Continue to subarea 3.

Yes; or Incomplete Information: In addition to the impacts specifically attributable to the proposed project, the EA/EIS should also address the potential for induced future development and its cumulative impacts.

3. Forest and Range Fires

a. Does the history of the project area indicate it is susceptible to forest or range fires?

No: Continue to 3b.

Yes; or Incomplete Information: The EA/EIS should provide a historical perspective on forest/range fires, indicate what fire-preventive measures will be incorporated into the project design, and include an assessment by the installation or local fire department as to their anticipated effectiveness.

b. Will the project activity be a potential cause of forest or range fires?

No: Continue to subarea 4.

Yes; or Incomplete Information: The EA/EIS should:

- Estimate the likelihood that the project activity will start a fire;
- Indicate the potential damage and impact of a fire on the surrounding area; and
- Specify precautionary measures to minimize the fire hazard.

For prescribed burning, the EA/EIS should indicate the preventive measures to be employed to contain the fire within the designated area.

4. Prime and Unique Farmlands

a. Do prime and unique farmlands exist near the project activity?

No: Continue to subarea 5.

Yes; or Incomplete Information: The EA/EIS should confirm the existence of a prime and unique farmland inventory and provide a brief synopsis of the surrounding farmlands to include size, type of crops, and estimated crop value.

b. Will the project activity consume or inhibit the use of the prime and unique farmlands?

No: Continue to subarea 5.

Yes; or Incomplete Information: The EA/EIS should:

- Provide information on the loss rate of prime and unique farmlands in the region;
- Evaluate the anticipated impacts to the continued use and viability of the farmlands resulting not only directly from the proposed project, but also from urbanization or other changes in regional land uses that might be induced by the project; and
- Indicate mitigating measures, if any, to preserve the prime and unique farmlands.

Complete 4c.

c. Does the EA/EIS confirm that the state office of the Soil Conservation Service (SCS) has been consulted?

No; or Incomplete Information: SCS consultation should be done early in the assessment process to determine the impact significance of the proposed project. Failure to consult is to be noted on the Land Use Summary.

Yes: Continue to subarea 5.

5. Sanitary Landfills

Will the project activity or underground service utilities be located over a former, or beside an existing, sanitary landfill or dump?

No: Continue to subarea 6.

Yes; or Incomplete Information: The EA/EIS should assess the potential damage to the proposed project from structural damage; noise, air, or surface and groundwater pollution, and other nuisances associated with old and active sanitary landfills or dumps. It should also indicate compliance with state and local regulations on sanitary landfills.

6. Climatic Hazards

Will the project activity be subject to climatic extremes such as tornadoes, hurricanes, flash floods, avalanches, and severe hail storms?

No: Continue to subarea 7.

Yes; or Incomplete Information: The EA/EIS should estimate the potential danger to life and property and indicate mitigative measures or precautions in structural design. If the proposed project is subject to flash floods, avalanches, or hurricanes, the EA/EIS should explain why alternate site locations are unacceptable.

7. Induced Land Use Changes

Will the project activity create or induce land use changes outside the installation or foreclose future land use options?

No: Continue to 7b.

Yes; or Incomplete Information: The EA/EIS should identify aspects of the project activity creating or inducing the changes; compare current land uses and growth patterns from current land use maps to anticipated changes with and without the proposed project; and indicate any land use options foreclosed or induced.

b. Will the project activity hinder access to environmental resources such as beaches, wetlands, recreation areas, historical sites, sacred areas, and archaeological sites?

No: Continue to 7c.

Yes; or Incomplete Information: The EA/EIS should indicate whether the impact will be permanent or temporary, the estimated number of people affected, and mitigative measures which might permit public access to the environmental resources.

c. Will the project activity be compatible with area land uses?

No; or Incomplete Information: The EA/EIS should:

- Identify surrounding land uses;
- Discuss possible conflicts between the proposed activity and the objectives of Federal, regional, state, and local (including Indian tribes, if applicable) land use plans, policies, and controls for the area concerned;
- Indicate the land uses adversely affected by the project and explain the impacts;
- Address possible measures to eliminate or reduce the adverse impacts.

Complete Land Use Summary (Figure 14).

Yes: Land Use Summary is now complete.

Noise

1. Noise

a. Will the project personnel be exposed to noise levels which exceed Occupational Health and Safety Administration (OSHA) noise standards, or which have an adverse impact on their hearing, behavior, and/or productivity?

No: Continue to 1b.

Yes; or Incomplete Information: The EA/EIS should indicate the source(s) of the noise; the intensity, duration, and frequency of the noise; and any noise control methods to be incorporated into the project design.

b. Will construction or operation of the proposed activity cause noise levels at the site's boundary to exceed standards or to have an adverse impact on neighboring activities?

If the project activity will be a source of either impulse, intermittent, or continuous noise, the EA/EIS should explain the results of noise contour mapping. The noise contours indicate lines of constant noise level radiating from the source(s). These maps can be used with land-use maps to quantify the effects of noise on those who must listen to it.

No: Continue to subarea 2.

Yes; or Incomplete Information: The EA/EIS should:

- Indicate existing noise levels;
- Applicable noise standards, if any;
- Existing land uses, including the presence of any sensitive receptors such as residences, schools, hospitals, churches, and parks;
- Anticipated noise levels with the project, to include type of noise, duration, time of noise, intensity, and frequency;
- Potential impact of the increased noise levels on humans and wildlife; and
- Measures, if any, to lessen the adverse impacts.

2. Vibration

Will construction and/or operation of the project produce vibrations which may have an adverse impact on surrounding activities or damage nearby structures?

No: Complete Noise Summary (Figure 15).

Yes; or Incomplete Information: The EA/EIS should indicate:

- Existing land uses and activities including the presence of any sensitive receptors;
- Projected vibration levels to include frequency, duration, time of vibrations, and intensity;
- Potential impact of vibrations on humans, nearby structures, and vibration-sensitive equipment such as precision measuring equipment or computers; and
- Measures, if any, to lessen the impacts of the vibrations.

Noise Summary is now complete.

Transportation

1. Road Transportation

a. Can the existing or proposed road system serving the project accommodate the expected traffic?

No; or Incomplete Information: The EA/EIS should describe

- Current road(s), e.g., traffic volume, capacity;
- Types and purpose of traffic using networks, e.g., bus, truck, auto;
- Character of traffic flow, e.g., periods of maximum and minimum use;
- Manner in which the road(s) and their uses will be impacted by the proposed project; and
- Measures to reduce traffic congestion, if anticipated -- e.g., road widening, restricted access

Complete 1b.

Yes: Continue to 1c.

b. Will adequate parking and loading/unloading facilities be available?

No; or Incomplete Information: The EA/EIS should compare estimated parking and loading/unloading requirements with design capacity and indicate planned measures to handle any projected overflow traffic volume.

Yes; or Incomplete Information: Continue to 1c.

c. Will the project activity disrupt the civilian road or highway transportation network?

No: Continue to 1d.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The nature of the disruptions -- relocation of streets or highways, rerouting of traffic, use of oversized equipment, movement of hazardous materials;
- The extent of the disruptions, i.e., area, frequency, time length; and
- Measures to eliminate or reduce the disruptive impacts.

d. Will the project activity be served by public transportation system?

No; or Incomplete Information: The EA/EIS should estimate the number of people who would use the public transportation system if available, and then determine if public transportation service is feasible

Yes: Continue to subarea 2.

2. Rail/Air/Water Transportation

a. Will the project activity generate changes in the demand for rail, air, or water transportation systems?

No: Continue to 2b

Yes; or Incomplete Information: The EA/EIS should describe:

- The manner in which the rail, air, or water transportation network or their uses will be impacted by the proposed project (e.g., *increased/decreased traffic, rescheduling, need for additional equipment or service facilities*). Indirect effects such as noise, air, and water pollution should also be addressed.

- Measures to lessen any adverse impacts.

b. Will the project activity disrupt rail, air, or water traffic flow?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should indicate:

- The nature of the disruptions (construction projects, firing ranges, missile launching operations);
- Extent of the disruptions, i.e., area, frequency, length of time, number of trains, aircraft, or ships affected; and

- Measures to eliminate or reduce the disruptive impacts.

3. Off-Road Vehicles

a. Will the project activity involve the use of off-road vehicles such as tracked, amphibious, and air-cushioned vehicles, jeeps, dune buggies, or snowmobiles?

No: Complete Transportation Summary (Figure 16).

Yes; or Incomplete Information: The EA/EIS should specify the type and number of vehicles and the anticipated frequency of use.

Complete 3b.

b. Will off-road vehicles be used in environmentally sensitive areas such as deserts, beaches, or wetlands?

No: Complete Transportation Summary.

Yes; or Incomplete Information: The EA/EIS should:

- Estimate the impact on the environment and ecological communities;
- Justify the requirement for use of such sensitive areas; and
- Consider possible measures to reduce the adverse impacts.

Transportation Summary is now complete.

Aesthetics

1. Design Composition

a. Will the project activity adversely impact the visual scene of the surrounding area?

The EA/EIS should:

- Describe the proposed project site and the surrounding environs;
- Evaluate the aesthetic impact of the proposed action -- including such factors as height of structures, interference of the project with natural views, and the desirability of vegetative buffers along the site perimeter; and
- Describe any architectural and landscaping techniques used to blend the project activity into the surrounding area.

No: Continue to 2a.

Yes; or Incomplete Information. Complete 1b.

b. Will especially unsightly areas such as loading and packing sites, open storage, incinerators and waste collection containers be exposed to public view?

No: Continue to subarea 2

Yes; or Incomplete Information. The EA/EIS should justify why these areas cannot be concealed or indicate possible design modifications to provide camouflage.

2. Environmental Amenities

a. Will the project activity degrade the amenities of the surrounding area and make the location unattractive?

No: Continue to 2c.

Yes; or Incomplete Information. The EA/EIS should specify the nature and areal extent of the degradation, the number of people affected, possible preventive or mitigative measures, and the potential controversy which may be created. Examples of adverse aesthetic impacts include smoke, soot, odors, noise, and water discoloration.

Complete 2b.

b. Will the project activity adversely impact scarce or unique geological features or other objects/landscapes of particular aesthetic value?

No: Continue to 2c.

Yes; or Incomplete Information. Special efforts should be made to protect fragile aesthetic resources. The EA/EIS should indicate

- The particular resources which will be impacted;
- The reasons for the unacceptability of alternate site locations; and
- Possible actions to lessen the impact.

c. Will the project activity deny or limit accessibility to aesthetic resources?

No: Continue to subarea 3.

Yes; or Incomplete Information. The EA/EIS should explain the need for the restriction, whether it will be permanent or temporary, and how many people will be affected. The document also should describe the aesthetic resources and indicate their relative scarcity.

3. Archaeological and Cultural Resources

a. Has an inventory to identify archaeological and cultural resources been conducted according to procedures set forth in TM 5-801-1?²

No; or Incomplete Information. Without an inventory of archaeological and cultural resources, other tests within this subarea cannot be completed. Unless the EA/EIS clearly states that no such resources will be impacted by the project, the document should be returned to the preparer so inventory results can be included.

The summary sheet should be annotated to indicate that subarea 3 cannot be evaluated due to this deficiency.

Yes: Continue to 3b.

b. Will the project activity generate any of the following conditions under which adverse impacts to archaeological and historical resources may occur

- Destruction or alteration of all or part of an archaeological or historic resource,
- Isolation from or alteration of the resource's surrounding environment,
- Introduction of physical, visual, audible, or atmospheric elements that are not of character with the resource and its setting?

² *Historic Preservation Administrative Procedures*, Technical Manual 5-801-1 (DA, November 1975).

No Complete Aesthetics Summary (Figure 17).

Yes, or Incomplete Information The EA/EIS should contain:

- A description of the affected archaeological and/or historic resources;
- An evaluation of the specific impact of the proposed project;
- An indication of possible measures to lessen the impact.

c Has coordination been initiated with the following agencies.

- State Historic Preservation Officer.
- Secretary of the Interior.
- Advisory Council on Historic Preservation.
- The National Trust for Historic Preservation.
- Smithsonian Institution?

No, or Incomplete Information Army policy requires that whenever Army actions affect archaeological or historic resources, coordination be initiated with the above agencies. The summary sheet would be annotated to indicate that this is a major impact item.

Complete Aesthetics Summary

Yes Aesthetics Summary is now complete.

Energy and Resources

1. Energy Requirements

a. Will enough energy be available to meet the anticipated needs of the project activity?

The EA/EIS should estimate the project's peak energy requirements and average energy consumption by source of energy, and compare this demand with available supplies to determine if the project will foster or be exposed to energy shortages.

No, or Incomplete Information The EA/EIS should consider measures to reduce energy consumption and/or ensure the availability of an adequate source of energy; e.g., conservation techniques, conversion to alternate energy types, stockpiling energy supplies.

Yes. Continue to 1b.

b. Will the project activity indirectly increase energy consumption?

The EA/EIS should consider the location of the proposed project with respect to places of residence, employment, service facilities, and shopping. This will indicate if the project activity will result in greater travel distances, cause more travel, or foster increased reliance on individual motor vehicle transportation as opposed to more energy-efficient mass transit modes. The document should determine if the project will result in an overload on any servicing utilities as this will increase energy consumption.

No. Continue to subarea 2.

Yes, or Incomplete Information The EA/EIS should indicate possible measures to lessen the project's indirect impact on energy consumption.

2. Conservation Measures

a. Are conservation measures for both energy and resources incorporated into the design of the project activity so that use is reduced as much as possible?

The EA/EIS should review the raw materials to be consumed by the proposed project and assess their availability in local, national, and world markets. Materials in critical supply are of particular concern and their use should be noted in the analysis.

No The EA/EIS should

- Indicate measures which may be incorporated into the project activity to conserve energy and/or resources, and

- Provide reasons for not including the conservation measures in the project, including tradeoffs in project cost, design, or operation and maintenance.

Yes; or Incomplete Information: Continue to 2b.

b. Is resource reuse/recovery from the project activity's waste materials technologically and economically feasible?

No: Continue to subarea 3.

Yes; or Incomplete Information: The EA/EIS should specify the types and amounts of resources for which reuse/recovery would be feasible and indicate which are in critical supply.

Complete 2c.

c. Will the project include a resource reuse/recovery system to minimize raw material needs and to maximize recycling of all waste products?

No; or Incomplete Information: The EA/EIS should review possible resource reuse/recovery systems and justify why they will not be included with the proposed project.

Yes: Continue to subarea 3.

3. Environmental Resource Degradation

Will the project activity consume so much energy and other resources that the environment is degraded? This consumption may be either direct or indirect (due to the refining, manufacturing, and transporting of the resources before they are actually used by the project activity itself).

No: Complete Energy and Resources Summary (Figure 18).

Yes; or Incomplete Information: The EA/EIS should estimate the environmental impact of the various energy and other resources in regard to supply development and use (e.g., air or water pollution) and indicate possible measures to reduce the adverse effects.

Energy and Resources Summary is now complete.

Technical Review Summary

The Technical Review Summary (Figure 19) compiles the information contained in the 13 separate summaries. After individual reviewers have evaluated the EA/EIS for technical adequacy in their area of expertise, and after summaries for each of the 13 areas have been completed, the office charged with overall responsibility for the review process should abstract the information and enter it on the Technical Review Summary to give the decision-maker.

The Technical Review Summary highlights areas which may have significant environmental impacts, may be controversial, or have been inadequately addressed in the EA/EIS. The summary will enable the decision-maker to quickly identify those areas for further review and subsequent action.

The Technical Review Summary should be completed and signed by the reviewer after analysis of the document. The form then should be presented to the responsible official for signature and his/her notation of concurrence or nonconcurrence with the review summary. Chapter 5 should be consulted for details.

Glossary of Terms in Chapter 4

area-wide waste treatment management plans (Section 208 plans). A management document prepared by each state under Section 208 of the Federal Water Pollution Control Act Amendments of 1972, which identifies the water quality problems of a particular approved state planning area or designated areawide planning area. It sets forth an effective management program to alleviate those problems and to achieve and preserve quality for all intended uses.

aquifer recharge zone. Aquifers are the geologic formations in which groundwater is contained. The recharge zone is that area through which precipitation and surface waters percolate down through

the soil into the aquifer. A project may have several impacts on an aquifer and its water supply. Reduction of porous surface area in a recharge zone through construction pouring or paving may cause diminished volumes of water to enter the groundwater system. Changes in vegetation resulting from urbanization and land clearing can also affect groundwater recharge rates. Eventually, groundwater discharge may exceed recharge, and groundwater levels will decline. It is through an aquifer recharge zone that groundwaters can be polluted by waterborne contaminants such as industrial wastes, fertilizers, pesticides, and storm water runoff. Therefore, measures should be taken to prevent toxic pollutants from entering a recharge zone.

community profile: A community is not necessarily distinguished by its geographic size or population, but rather by a set of characteristics that give residents in an area a feeling of belonging and identity. Thus, a community could refer to anything from a neighborhood to a small town or city, depending on how the residents perceive their relationship to it. Community profile is the combination of demographic characteristics which can be considered distinctive, and which is so valued by the residents that they want to protect it against change. Important elements of such a profile are population size and composition, periods of growth or decline, major ethnic groups, and an account of the community's experience with major events such as a disaster, economic recession, or political upheaval.

design composition: The visual appearance of a landscape -- including the manmade structures juxtaposed against a natural environment. Natural attributes which influence design composition include: vegetation, wildlife, surface water, topography, and unique natural resources. Man-made design attributes include: transportation/ utility rights-of-way, architectural styles, building density, scale, and physical properties.

diversity: The concept of diversity includes two distinct factors:

1. *Species diversity* is a measure of the number of plant or animal species occurring in a given area and their relative abundance. It is often used as a measure of the biological complexity of a place and of the ability of a vegetative community to withstand stress.
2. *Spatial diversity* (or volume heterogeneity) refers to the way plants on a site occupy the available volume, both in area covered (horizontal diversity) and in vertical height diversity. Spatial diversity may be a very good indicator of the value of a site as habitat for various groups of wildlife, and thus, of secondary productivity of ecosystems.

drainage channel form: A natural stream channel usually represents an equilibrium condition. The shape and depth of the channel allow water to remain within the banks most of the time and to permit the normal amount of sediment in the water to be carried downstream. Construction activities and development may disrupt stream equilibrium by changing any of the above components. Small drainage systems are especially sensitive to such impacts.

environmental amenities: The quality or qualities of the environment that make it pleasant or agreeable. Amenities include perceived aspects of the environment (e.g., sound, smell, visibility) that make it desirable, and those that have social-cultural value.

erodibility: The exposure of soils which may be especially susceptible to rapid erosion. Such exposure primarily results from construction activities and from failure to protect the ground immediately following construction and until vegetation has become firmly established. Exposure and subsequent erosion of soils may pollute surface waters, change land form, present safety hazards, and cause structural damage by undermining foundation support.

foundation support: When loads are placed on soil or rock, deformation and compression may occur. Large structural deflection or deformation of the ground surface may cause structural damage and should therefore be avoided. The state of the art is such that excessive deflection may be avoided or accommodated. Hence, adequate foundation support is a matter of engineering design and

economic feasibility.

hazardous air pollutant: An air pollutant to which no ambient air quality standard is applicable and which, in the judgment of the administrator of EPA, may cause or contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness. National emission standards have been issued by EPA for asbestos, beryllium, mercury, and vinyl chloride (Reference Title 40, Code of Federal Regulations, Part 61).

induced land use changes: Changes in land use patterns outside the installation boundaries. Land use patterns can be affected by increasing or decreasing population at an installation and by constructing a facility or initiating an activity. Changes in land or building appearances and ambient sound levels are some conditions which may alter the values of adjacent property.

liquefaction: A relatively unusual condition in which very loosely packed soils rapidly convert to a virtually fluid condition. This conversion typically occurs in conjunction with seismic shock or mechanical vibration of the soil mass. Extensive damage to property and loss of life can occur with the loss of foundation support.

National Ambient Air Quality Standards (NAAQS): Primary and secondary standards adopted by the EPA and specifying acceptable atmospheric concentrations for six major air pollutants: particulate matter, sulfur oxides, carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen oxides. The states are required to develop implementation plans to meet and maintain the NAAQS.

National Pollutant Discharge Elimination System (NPDES): The national system for issuing, conditioning, and denying permits for the discharge of pollutants from point sources into navigable waters and oceans, including any state permit program which has been approved by the EPA. (See Title 40, Code of Federal Regulations, Parts 124 and 125.)

nonpoint source: The diffuse discharge (into a water body) of waste whose specific source cannot be located -- as with sediment, certain agricultural chemicals, and acid mine drainage.

nutrient cycling: The flow or cycling of nutrients such as phosphorous, calcium, magnesium, potassium, and nitrogen compounds is essential for sustained plant and animal growth and reproduction. There is a natural rate of loss and a continued replacement of these elements. However, human activities frequently disrupt these cycles and accelerate the losses. This can severely limit productivity in some areas through loss of nutrients and greatly increase it elsewhere through an overabundance of nutrients.

point source: A specific site from which wastewater is discharged into a water body -- as with effluent from a sewage system, outflow from an industrial activity, or runoff from an animal feedlot.

productivity: Refers to the increase in biomass, or amount of living matter, in an area. Ideally, the determination of a site's productivity would include the biomass increase of all living things resident on it. However, due to the extreme difficulty in working with whole ecosystems and the mobile populations of animals, studies of productivity are usually concerned only with obtaining measures of the biomass increase of green plants. This measure reliably indicates the inherent fertility of land, and may be used to compare sites in order to minimize losses of especially fertile areas.

quality health care: The demand for health care services depends on the socioeconomic and demographic characteristics of the projected population as well as on the available physician services, personnel, and hospital substitutes such as nursing homes, outpatient clinics, and home care programs. Health care facilities and services must be of a size, accessibility, quality, and type to meet the health care needs of the population and to offer preventive treatment, as well as remedial, acute, and emergency services.

radiation: 1. Ionizing radiation presents a serious health hazard and refers to alpha, beta, X-ray, and gamma radiations. It is not detectable to human senses and must be monitored with special instruments.

2. Microwave radiations are produced by food ovens, radar, television, and communications stations. These sources also produce X-rays and small amounts of ultraviolet radiation, which can be a local hazard.

3. Laser radiation includes the infrared, visible, and ultraviolet light portions of the electromagnetic spectrum. Lasers emit concentrated light waves in a narrow, very intense beam which is capable of inflicting split-second damage to the human eye and skin.

4. Other radiations include infrared, visible, and ultraviolet light emissions.

sanitary landfill: A means of disposing of refuse on land without creating nuisances or hazards to public health or safety. This disposal method uses principles of engineering to confine the refuse to the smallest practical volume, and to cover it with a layer of earth at the end of each day's operation or at more frequent intervals, as necessary. When a project is evaluated, there are six items of concern related to sanitary landfills:

1. Distance (visual and actual) of the project from an existing landfill;
2. Air and water pollution and other health hazards associated with animal and insect life from existing landfills;
3. Potential groundwater and surface water pollution from leachate;
4. Gas transmissions from trench backfills;
5. Construction on an old landfill; and
6. Construction of a new landfill to dispose of project-generated solid waste.

sedimentation: A process whereby material eroded from land areas is carried by runoff into surface waters. These materials, or sediments, settle out of suspension and are deposited in ponds, lakes, reservoirs, and stream channels. Sedimentation is a natural process. However, it can be greatly accelerated by human activities involving the removal or disturbance of the natural vegetative and soil cover, or by storm water washing accumulated solids from developed areas into adjacent streams.

slope stability: Refers to the possibility of a relatively sudden and deep-seated earth slide occurring because of the failure of a natural earth slope or constructed embankment. Such failure results from factors which either increase the stresses within the soil mass or decrease the strength of that mass. These factors include placement of buildings at the top of slopes, excavation at the top of slopes, or the addition of water to the materials underlying a slope. In general, consolidated rock can form steeper, more stable slopes than can unconsolidated rock and soil. However, joints or faults in the rock may create unstable conditions which can lead to slope failure.

storm water drainage: The drainage system designed to carry urban storm runoff. The two major concerns in storm water drainage are quantity and quality. The system must be designed to carry water volume away from the proposed project so that flooding and erosion will not occur either on the site or downstream. The storm runoff affects the quality of the receiving water by transporting previously land-locked wastes -- such as salts, residue leads, grease and oil from automobiles, and other toxic materials -- into the water.

subsidence: The localized downward movement of the ground surface with little horizontal movement.

It is usually caused by the collapse of underground voids such as mines or caverns, by excessive groundwater withdrawal, or by extraction of oil. Subsidence may damage all types of construction, including buildings, sewage disposal works, water pipes, sewer lines, gas lines, and roads.

toxic air pollutants: Pollutants causing death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, or physical deformations in any organisms or their offspring.

water table: The place in subsurface materials below which all pore spaces are saturated. Water table levels are not static, but vary over yearly cycles due to the level of surface streams and other natural causes and may undergo permanent changes due to human activities.

ECOLOGY SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1. Nutrient Cycling										
2. Plant and Wildlife Species										
a. Wild animal species and/or their habitats										
b. Nuisance or pest plants and wildlife										
c. Impacts confined										
d. Reduce or destroy food or habitat										
3. Diversity										
a. Substantial diversity										
(1) Diversity of the vegetative community is low										
(2) Diversity of the vegetative community is great										
i. Recreational gain/loss										
4. Productivity										
a. Site(s) affected										
b. Site characteristics										
c. Productivity of sites										

Figure 6. Ecology summary.

HEALTH AND SAFETY SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1. Health Care										
a. Access to quality health care										
b. Impede health care services										
2. Solid Waste Disposal										
a. Generate solid wastes										
b. Environmentally sound disposal										
(1) Special disposal procedures										
3. Water Supply										
4. Safety										
a. Hazardous or unsafe conditions										
b. Safety hazards										
5. Radiation										
6. Stress										
7. Disease										
8. Electromagnetic spectrum										

Figure 7. Health and Safety summary.

AIR QUALITY AND SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1 Generation and Dispersion of Contaminants										
a. Generate air emissions										
b. Permit application										
c. Adverse effect on NAAQS										
2 Toxic Air Pollutants										
3 Odor										
4 Climate/Atmospheric Quality										

Figure 8. Air Quality summary.

SURFACE WATER SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1 Drainage/Channel Form										
2 Sedimentation										
3 Water Quality										
a Point or nonpoint source										
b Impact on the receiving stream										
4 Flooding										
a Flood plain										
b Increased water flow, reduced water absorption, or increased runoff										
5 Storm Water Drainage										
a Increase in drainage										
b Storm water runoff										
6 Flow Modification										
a Flow characteristics										
b Reduction in water supply										
c Recreational activities										

Figure 9. Surface Water summary.

GROUNDWATER SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1. Groundwater Quantity										
a. Decrease in ground- water recharge										
b. Increased ground- water withdrawal										
c. Aquifer recharge zone										
2. Groundwater Quality										
a. Aquifer recharge zone										
b. Toxic materials										
c. Deep well injection										
3. Depth to Water Table										
a. Water withdrawal										
b. Septic tanks										
c. Impermeable layers or soils										

Figure 10. Groundwater summary.

Document Adequacy			Impact Verification				
Insufficient Information	Inadequate Information	Adequate	No Impact	Minor Impact	Major Impact	Violates Standards	Controversial
1 Educational Services							
a Alteration in demand							
b School sites suitably located							
2 Recreational/Cultural Facilities							
a Increased demand							
b Recreational and/or cultural opportunities							
3 Social Services							
a Demand							
b Access							
c Adequate housing							
d Available utilities							
4 Police Protection							
a Adequate							
b Increase in crime rates							
5 Fire Protection							
6 Community Profile							
a Change in character of community							
b Breakdown in community cohesion							
c Displacement of individuals							

Figure 11. Sociology summary.

ECONOMICS SUMMARY	Document Adequacy			Remarks	Impact Verification						Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial		
1. Employment											
a. Eliminate or re- locate existing jobs											
b. Generate jobs											
c. Skills available locally											
2. Land and Property Values											
3. Income											
a. Impact income levels											
b. Change income dis- tribution											
c. Local purchase of goods and services											
4. Regional Economic Activity											
a. Impact Public sector revenues or expenditures											
b. Level of economic activity											

Figure 12. Economics summary.

Document Adequacy				Impact Verification						
EARTH SCIENCE SUMMARY	Insufficient Information	Inadequate Information	Adequate	Remarks	No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	Remarks
SUMMARY										
1 Slope Stability										
a Risk of losses										
b Dangers										
2 Erodibility										
a Loss of soils or Soil fertility										
b Secondary damage										
3 Subsidence										
a Increase risk of subsidence										
b Area characteristics										
c Structures										
4 Foundation Support										
a Unconsolidated foun- dation materials										
b Damages caused by soils shrinking and swelling										
c Frost action										
d Liquefaction										
5 Earthquake Hazard										

Figure 13. Earth Science summary.

LAND USE SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1. Mineral Resources										
a. Mineral deposits										
b. Development of the mineral resources										
2. Wetland/Coastal Zones/Shorelines										
a. Project activity										
b. Degrade coastal zones										
c. Stimulate future development										
3. Forest and Range Fires										
a. Area Susceptible										
b. Cause forest or range fire										
4. Prime and Unique Farmlands										
a. In the vicinity										
b. Consume or inhibit use										
c. Soil Conservation Service										
5. Sanitary Landfills										
6. Climatic Hazards										
7. Induced Land Use Changes										
a. Create or induce changes										
b. Deny or interfere with access to resources										
c. Compatible										

Figure 14. Land Use summary.

NOISE SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1. Noise										
a. Noise levels exceed OSHA standards										
b. Boundary noise levels exceed standards										
2. Vibration										

Figure 15. Noise summary.

TRANSPORTATION SUMMARY	Document Adequacy			Remarks	Impact Verification						Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial		
1. Road Transportation											
a. Road system adequate											
b. Parking and loading/ unloading facilities											
c. Disruptions											
d. Public transpor- tation system											
2. Rail/ Air/Water Transportation:											
a. Changes in demand											
b. Possible disruptions											
3. Off-Road Vehicles:											
a. Use of off-road vehicles											
b. Use in environ- mentally sensitive areas											

Figure 16. Transportation summary.

AESTHETICS SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1. Design Composition:										
a. Visual scene adversely affected										
b. Unsightly areas exposed to public view										
2. Environmental Activities:										
a. Degrade amenities of the area										
b. Adversely impact on scarce or unique features										
c. Accessibility to aesthetic resources										
3. Archaeological and Cultural Resources:										
a. Inventory										
b. Generate adverse impacts										
c. Coordination										

Figure 17. Aesthetics summary.

ENERGY AND RESOURCES SUMMARY	Document Adequacy			Remarks	Impact Verification					Remarks
	Insufficient Information	Inadequate Information	Adequate		No Impact	Minor Impact	Major Impact	Violates Standards	Controversial	
1. Energy Requirements										
a. Adequate supply of energy										
b. Increased energy consumption										
2. Conservation Measures										
a. Maximum reduction in consumption										
b. Resource reuse/recovery										
c. Minimize raw material requirements, maximize recycling										
3. Environmental Resource Degradation										

Figure 18. Energy and Resources summary.

Alternative _____

**TECHNICAL REVIEW
SUMMARY**

REMARKS

1 Ecology

2 Health and Safety

3 Air Quality

4 Surface Water

5 Groundwater

6 Sociology

7 Economics

8 Earth Science

9 Land Use

10 Noise

11 Transportation

12 Aesthetics

13 Energy and
Resources

Recommendation _____

Signature _____ Date _____ Concur _____ Nonconcur _____
Signature _____ Date _____
(Responsible Official)

Title _____ Title _____

Figure 19. Technical Review summary.

5 REVIEW SUMMARY FOR DECISION-MAKING

Ultimate Decision Options

When the review of an EA/EIS document is complete, the results of that review are reported to the base commander, project proponent, sponsor, or ultimate decision-maker who will consider the advice and take action as he/she deems appropriate.

To convey the results of the review to the decision-maker clearly and concisely, an information "package" should be prepared as outlined under **Procedural Description**, below. The cover sheet of this package is a Recommendation for Action form (Figure 20), which summarizes the following decision options

1. EA satisfactory with finding of no significant impact. No further action required
2. EA satisfactory, but the project (or certain aspects of the project) requires an EIS
3. EIS satisfactory, proceed with further review requirements.
4. EA/EIS unsatisfactory, return to preparer for revision or inclusion of additional information
5. Other options as may be warranted in particular situations.

Procedural Description

This discussion is directed toward the office charged with the overall responsibility for the review process. Reviewers from this office should collect the responses to the various questions and summaries contained in Chapters 2 through 4 from those individuals and/or offices previously requested to evaluate all or parts of the EA/EIS document.

After the individual summaries are collected, the office responsible for coordinating the review process should consolidate these responses on a single set of summary forms as outlined below. After preparing a single, complete set of summary forms, complete the Recommendation for Action form, make a final recommendation about the adequacy of the EA/EIS, and forward the following "package" (Figure 21) to the commander, project proponent, or decision-maker.

1. Recommendation for Action (Figure 20);
2. Administrative Compliance Review Summary (Figure 3);
3. General Document Review Summary (Figure 5);
4. Technical Review Summary (Figure 19), for each active alternative;
5. Thirteen technical area evaluations (Figures 6 through 18) for each active alternative; and
6. The original EA/EIS document.

After reviewing the package, the decision-maker may concur or nonconcur, and indicate this decision on the Recommendation for Action form (Figure 20) and on the summary forms for Chapters 2 through 4 (Figures 3, 5, and 19).

RECOMMENDATION FOR ACTION

TO _____
(Responsible Official)

FROM _____
(Reviewer)

SUBJECT: EA/EIS Review Of _____
(Project Title)

The attached Environmental Assessment (EA)/Environment Impact Statement (EIS) has been evaluated for completeness and accuracy. It has been subjected to an administrative compliance review and a general document review as well as a technical review. The reviewing officials' assessments have been compiled to serve as a decision-making tool.

Action Recommended:

The options available to you are as follows:

- _____ 1. EA satisfactory with finding of no significant impact. No further action required.
- _____ 2. EA satisfactory, but project requires an EIS.
- _____ 3. EIS satisfactory. Proceed with further review requirements.
- _____ 4. EA/EIS unsatisfactory.
- _____ 5. Other. See comments below.

Comments:

Signature _____
(Reviewer)

Concur _____

Noncur _____

Comments

Signature _____
(Responsible Official)

Title _____

Figure 20 Recommendation for action.

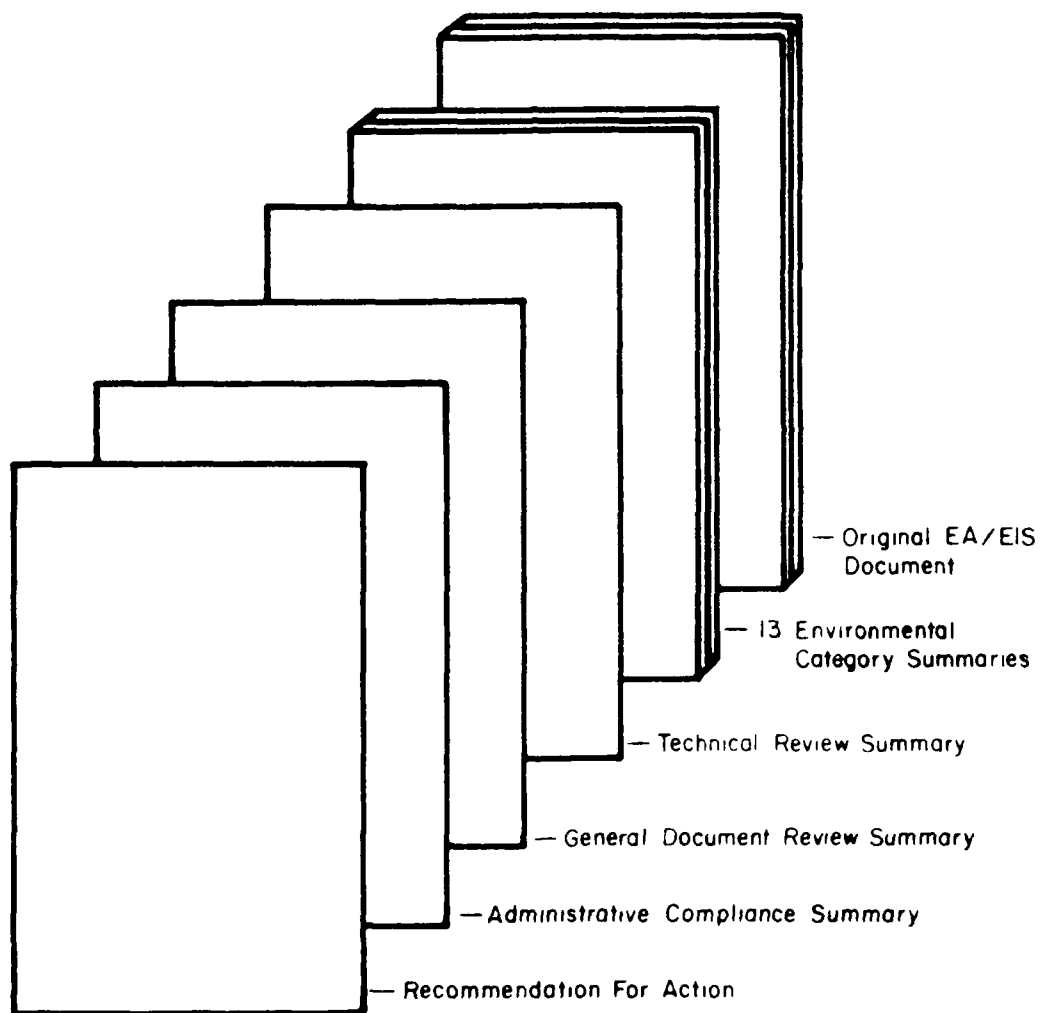


Figure 21. Review "package" for decision-making.

6 CONCLUSION AND RECOMMENDATIONS

This report documents systematic procedures for reviewing EA/EISs of Army military activities. It describes techniques for administrative compliance review, general document review, and technical review that should produce higher quality EA/EIS documents.

It is recommended that the methods outlined in this report be used by personnel involved in reviewing EA/EISs of Army activities. This report may also aid the approach and organization phase of EA/EIS document preparation. Until the technology transfer on this study is completed, it is further recommended that this report be used in conjunction with DA Pamphlet 200-1, AR 200-1, and AR 200-2.

9

1. *Journal of the American Medical Association*, 1997; 277: 103-107.
 2. *Journal of the American Medical Association*, 1997; 277: 108-112.
 3. *Journal of the American Medical Association*, 1997; 277: 113-117.

2000年12月15日

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971) using a Shimadzu 1010 spectrophotometer.

the 1990s, the number of people in the world who are illiterate has increased from 1.2 billion to 1.5 billion. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015.

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains. The concentration of the *Agrobacterium* suspension was 10⁶ cells/ml (○), 10⁷ cells/ml (□), 10⁸ cells/ml (△), and 10⁹ cells/ml (◇). The error bars represent the standard deviation of three independent experiments.

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

the 1990s, the number of people in the world who are illiterate has increased from 1.2 billion to 1.5 billion. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015.

the 1990s, the number of people in the world who are undernourished has declined from 1.1 billion to 800 million. The number of people who are malnourished has declined from 1.5 billion to 1 billion. The number of people who are obese has increased from 100 million to 300 million. The number of people who are overweight has increased from 100 million to 300 million. The number of people who are obese and overweight has increased from 100 million to 300 million. The number of people who are obese and overweight has increased from 100 million to 300 million.

[illegible]

the 1990s, the number of people in the United States who are 65 years of age or older has increased by 50% (U.S. Census Bureau, 1997). The number of people aged 65 and older is projected to increase to 20% of the total population by the year 2020 (U.S. Census Bureau, 1997). The increase in the number of people aged 65 and older is expected to be even more dramatic in other countries. For example, the number of people aged 65 and older in Japan is projected to increase from 15% of the total population in 1990 to 25% of the total population by the year 2020 (U.S. Census Bureau, 1997). The increase in the number of people aged 65 and older is expected to be even more dramatic in other countries. For example, the number of people aged 65 and older in Japan is projected to increase from 15% of the total population in 1990 to 25% of the total population by the year 2020 (U.S. Census Bureau, 1997).

[illegible]

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[illegible]

$\frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$

M. J. Griffin, School of Mechanical Engineering, University of Southampton, Highfield, Southampton, SO9 5NH, UK
 T. P. N. Gill, School of Mechanical Engineering, University of Southampton, Highfield, Southampton, SO9 5NH, UK
 D. J. Ewins, School of Mechanical Engineering, University of Southampton, Highfield, Southampton, SO9 5NH, UK

^a χ^2 = 1.03, df = 1, p = .31.
^b χ^2 = 1.03, df = 1, p = .31.

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971) using a Shimadzu 1601 UV-Visible Spectrophotometer.

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971).
 2. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971).
 3. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971).

1. *Phragmites australis* (Cav.) Trin. ex Steud.
 2. *Scirpus americanus* (L.) Link.
 3. *Scirpus setaceus* (L.) Link.
 4. *Scirpus tabernaemontani* (Cav.) Trin. ex Steud.
 5. *Scirpus torreyana* (Cav.) Trin. ex Steud.
 6. *Scirpus yagara* (Cav.) Trin. ex Steud.
 7. *Scirpus yagara* (Cav.) Trin. ex Steud.
 8. *Scirpus yagara* (Cav.) Trin. ex Steud.
 9. *Scirpus yagara* (Cav.) Trin. ex Steud.
 10. *Scirpus yagara* (Cav.) Trin. ex Steud.

1. *Phragmites australis* (Cav.) Trin. ex Steud.

Figure 1. The effect of the concentration of the solution on the rate of polymerization of methyl methacrylate initiated by ceric ammonium sulfate at 60°C. [MMA] = 0.8 M; [CDS] = 0.001 M; [KBrO₃] = 0.001 M; [H₂O₂] = 0.001 M; [H₂O] = 0.001 M; [H₂O₂] = 0.001 M; [H₂O] = 0.001 M.

[illegible]

1. *Pharmaceutical industry* – The pharmaceutical industry is the largest of the three industries, with sales of \$10.5 billion in 1997. It is the only industry that has a significant presence in all three markets. The industry is characterized by high R&D expenditures, high barriers to entry, and high margins. The industry is dominated by a few large firms, with the top five firms accounting for 40% of sales.

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971).
 2. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971).
 3. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971).

1. The first step is to identify the key components of the system. This includes understanding the hardware, software, and data involved.

[illegible]

* $p < .05$, ** $p < .01$, *** $p < .001$.

...the fact that the *in vitro* and *in vivo* results are in good agreement, and that the *in vivo* results are in good agreement with the results of the *in vitro* studies.

the 1990s, the number of people in the world who are under 15 years of age is expected to increase by 1.5 billion, from 1.1 billion in 1990 to 2.6 billion in 2015. The number of people aged 65 and over is expected to increase by 1.1 billion, from 350 million in 1990 to 1.4 billion in 2015. The number of people aged 15-64 is expected to increase by 1.5 billion, from 2.5 billion in 1990 to 4.0 billion in 2015. The number of people aged 65 and over is expected to increase by 1.1 billion, from 350 million in 1990 to 1.4 billion in 2015. The number of people aged 15-64 is expected to increase by 1.5 billion, from 2.5 billion in 1990 to 4.0 billion in 2015.

[illegible]

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[illegible][illegible][illegible]

Abstract. The authors consider the problem of determining the optimal control of a linear system with respect to the criterion of the minimum variance of the estimate of the state vector at a fixed time. It is shown that the optimal control law has the form of a feedback from the estimate of the state vector obtained by means of the Kalman filter algorithm. The case of a nonstationary disturbance is also considered.

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

[illegible]

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 $\mathbf{C} = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix}$
 $\mathbf{D} = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix}$

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1. *Explain the*
 importance of the following factors in the
 development of a country's economy:
 (a) *Human resources*
 (b) *Capital resources*
 (c) *Technology*
 (d) *Government policy*
 (e) *Infrastructure*
 (f) *Trade and international relations*
 (g) *Education and health*
 (h) *Environment*
 (i) *Demography*
 (j) *Political stability*
 (k) *Legal system*
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 (ie) *Language*
 (if) *History*
 (ig) *Science and innovation*
 (ih) *Industry and manufacturing*
 (ii) *Services and trade*
 (ij) *Transport and communication*
 (ik) *Energy*
 (il) *Healthcare*
 (im) *Education*
 (in) *Environment*
 (io) *Demography*
 (ip) *Political stability*
 (iq) *Legal system*
 (ir) *Religion and culture*
 (is) *Geography*
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Figure 1. The effect of the concentration of the Ag^+ ions on the adsorption of Ag^+ ions by the Ag^+ -loaded Ag_2S and Ag_2S particles. The concentration of the Ag^+ ions was 0.01, 0.05, 0.1, 0.5, 1, 5, and 10 mg/L. The concentration of the Ag^+ -loaded Ag_2S and Ag_2S particles was 0.1 g/L. The adsorption time was 24 h. The adsorption temperature was 25 °C.

[illegible][illegible]
$$\frac{d}{dt} \left(N_{\text{eff}} + \frac{N_{\text{eff}}^2}{2} \right) = -N_{\text{eff}} \left(1 + \frac{N_{\text{eff}}}{2} \right) \quad (1)$$

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